: 25
ųĎ.
100
(F)
T
10
ħŲ.
15
(D) (II)
(n
ing.
10
23

Express Mail Label No. EL437905460US Dated Filed: January 14, 2000

		430 Rec'd Po	CT/PTO 1 4 JAN 2000						
FORM PTO-1390 U.S. DEPARTMENT OF ATTORNEY'S DOCKET									
	MMERCE PATENT AND TRA	NUMBER							
(RE	EV. 1094)	L0461/7078							
	TRANSMITTAL LETTER T								
	DESIGNATED/ELECTEI	00/1/2000							
CONCERNING A FILING UNDER 35 U.S.C. 371			US APPLICATION NO. 14.62.9.29						
PCT/US98/14679		INTERNATIONAL FILING DATE 15 July 1998 (15.07.98)	PRIORITY DATE CLAIMED 17 July 1997 (17.07.97)						
	E OF INVENTION								
CANCER ASSOCIATED NUCLEIC ACIDS AND POLYPEPTIDES APPLICANT(S) FOR DO/EO/US									
OLD,	, Lloyd J.; SCANLAN, Matthew J.: STOCE	KERT, Elisabeth; GURE, Ali; CHEN, Yao-Tse	ene: GOLIT Ivan: O'HADE Mishael						
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:									
1. >	X This is a FIRST submission of items of	concerning a filing under 35 U.S.C. 371.							
	☐ This is a SECOND or SUBSECUEN'	Furtherization of items concerning a filler and	er 35 U.S.C. 371.						
3. 3	X This express request to begin national	procedures (35 U.S.C. 371(f) at any time rathe	r than delay examination until the expiration						
4. X									
5. X	X A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date. X A copy of the International Application as filed (35 U.S.C. 371(c)(2)).								
	 a. is transmitted herewith (required) 	ed only if not transmitted by the International	Bureau).						
	 b. has been transmitted by the Interest in th	ternational Bureau	· ·						
	c. A is not required, as the application	was filed in the United States Receiving Offic	∞ (RO/US).						
6.	A translation of the International Application into English (35 U.S.C. 371(c)(2)) with verification of translation.								
7. X									
	a. Lare transmitted herewith (require	a. □ are transmitted herewith (required only if not transmitted by the International Bureau). b. □ have been transmitted by the International Bureau.							
	c. have not been made; however.	the time limit for making such amendments b	ac NOT avnirad						
	 c. have not been made, however, the time limit for making such amendments has NOT expired. d. X have not been made and will not be made. 								
8.	A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).								
9.	An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).								
10.	A translation of the annexes to the Inte	mational Preliminary Examination Report und	er PCT Article 36 (35 U.S.C. 371(C)(5)).						
Items	s 11. To 16. Below concern document	(a) an information in 1 1 1							
11.	An Information Disclosure Statement	inder 37 CFR 1.97 and 1.98 with references.							
12.	 An assignment document for recording 	. A separate cover sheet in compliance with 3	7 CFR 3.28 and 3.31 is included.						
13. X	A FIRST preliminary amendment.								
_		mary amendment.							
14.	A substitute specification (submitted as	a first Preliminary Amendment).							
15.	A change of power of attorney and/or a	ddress letter.							
16. X	Other items or information:								
-	Mailed via Express Mailing Label No. Post Card	EL437905460US							

428 Rec'd PCT/PTO 1 4 JAN 2000

U.S. APPLICATION NO (1) knows	a Q a Q	INTERNATIONAL APPLICATION		ATTORNEY'S DOCKET !	NUMBER		
07/40	DC / C / PCT/US98/14679		L0461/7078				
	The following fees are submitted:			CALCULATIONS PIOUSE ONLY			
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(5)): Search Report has been prepared by the EPO or JPO							
International preliminary examination fee paid to USPTO (37 CFR 1.482) S670.00							
No international pro- but international sea							
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO							
International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) \$96.00							
		BASIC FEE AMOUNT		\$840.00			
months from the earliest	claimed priority date (37			\$			
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE				
Total Claims	35-20 =	15	X \$18.00	\$270.00			
Independent Claims	19-3=	16	X \$78.00	\$1248.00			
MULTIPLE DEPENDE	NT CLAIM(S) (if applic		+\$260.00	\$260.00 \$2618.00			
75 1 1/ 1 1/ 6 7//		ABOVE CALCULATION					
Reduction by ½ for filing by small entity, if applicable. Verified Small Entity Statement suust also be filed (Note 37 CFR 1.9, 1.27, 1.28).							
		SUBTOT		S			
Processing fee of \$130.0 months from the earliest	S						
	\$						
Fee for recording the en accompanied by an appr	\$						
	\$2618.00						
				Amount to be: refunded	s		
				charged	S		
a. X A check in the a	mount of \$ 2618.00	to cover the above fees	is enclosed	Chargon	1.9		
a. X A check in the amount of \$_2618.00 to cover the above fees is enclosed. b. Please charge by Deposit Account No In the amount of \$ To cover the above fees. A duplicate copy of this sheet is enclosed							
c. X The commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 23/2825. A duplicate of this sheet is enclosed.							
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b) must be filed and granted to restore the application to pending status.							
SEND ALL CORRESPONDENCE TO SEND ALL CORRESPONDENCE TO SIGNIFICATE SIGNIFICAT							
John R. Van Amsterdam WOLF, GREENFIELD & SACKS, P.C. 600 Atlantic Avenue Boston, Massachusetts 02210 40,212 REGISTRATION NO							

Form)T)-1390 (REV 10-94) page 2 of 2

09/462929 428 Rec'd PCT/PTO 14 JAN 2000

ATTORNEY'S DOCKET NO. L0461/7078

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Old et al.

Serial No: PCT/US98/14679

Filed: July 15, 1998

For: CANCER ASSOCIATED ANTIGENS AND USES THEREFOR

Examiner: Not Assigned

Art Unit: Unknown

Box PCT ASSISTANT COMMISSIONER FOR PATENTS WASHINGTON, D.C. 20231

Sir:

PRELIMINARY AMENDMENT

Please amend the application as follows.

In the Specification

Please amend the specification as follows. Please add the following paragraph as the first paragraph of the specification:

--This application is a national stage application under 35 U.S.C. §371 of PCT/US98/14679, filed July 15, 1998, which is a continuation in part of U.S. application serial no. 08/896,164, filed July 17, 1997, U.S. application serial no. 08/948,705, filed October 10, 1997, and U.S. application serial no. 09/102,322, filed June 22, 1998, all of which are now pending. This application also claims priority under 35 U.S.C. §119 to U.S. application serial no. 60/061,599, filed October 10, 1997, and U.S. application serial no. 60/061,765, filed October 10, 1997, both of which are now abandoned. This application also claims priority under 35 U.S.C. §119 to Great Britain application no. 9721697.2, filed October 11, 1997.--

In the Claims

Please delete without prejudice claims 3, 4, 6-17, 19-21, 23-30, 32-39, 41, 43, 45-48, 50-57, 60-66, 68-70, 72, 78, 80, 81, 84, 86-89, 91, 92, 94-98, 100, 101, 103, 104, 106, 107, 109-111, 113-115 and 117.

adjuvant.

Please amend the claims as follows:

- 40.(amended) The composition of claim[s] 31[-38], wherein the agent is an antibody.
- 42.(amended) A composition of matter comprising a conjugate of the agent of claims 31[-41] and 40 and a therapeutic or diagnostic agent.
- 49.(amended) A pharmaceutical composition comprising an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, or an <u>HLA binding fragment thereof</u> and a pharmaceutically acceptable carrier.
- 58.(amended) The pharmaceutical composition of claim[s] 49[-57], further comprising an
- 71.(amended) An expression vector comprising an isolated nucleic acid molecule of claim[s] 59[, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69 or 70] operably linked to a promoter.
- 74.(amended) A host cell transformed or transfected with an expression vector of claims 71, [72,] or 73.
- 75.(amended) A host cell transformed or transfected with an expression vector of claim 71 [or claim 72] and further comprising a nucleic acid encoding HLA.
- 76.(amended) An isolated polypeptide encoded by the isolated nucleic acid molecule of claim[s] 59[, 60, 61, 62, 63, 64, 65, or 66].
- 102.(amended)A method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

administering to a subject a pharmaceutical composition of any one of claims 18, [19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30,] 44[, 45, 46, 47, 48,] and 49[, 50, 51, 52, 53, 54, 55, 56, 47, and 58] in an amount effective to prevent, delay the onset of, or inhibit the condition in the subject.

112. (amended)A composition of matter useful in stimulating an immune response to a plurality of [a] proteing encoded by nucleic acid molecules that are NA Group 1 molecules, comprising

a plurality of peptides derived from the amino acid sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

Remarks

Please enter this amendment prior to calculation of the fees. The amendments to the specification were made to correct typographical errors and reduce claims. Support for the amendment to claim 49 can be found in the claims as filed. No new matter has been added.

Respectfully submitted,

John R. Van Amsterdam, Reg. No. 40,212

WOLF, GREENFIELD & SACKS, P.C. Federal Reserve Plaza

600 Atlantic Avenue Boston, Massachusetts 02210

Tel.: (617) 720-3500

Docket No.: L0461/7078 Date: January 14, 2000

X01/17/00

PCT/US98/14679 89/462927

CANCER ASSOCIATED NUCLEIC ACIDS AND POLYFEPTIDES

Field of the Invention

The invention relates to nucleic acids and encoded polypeptides which are cancer associated antigens expressed in patients afflicted with breast cancer. The invention also relates to agents which bind the nucleic acids or polypeptides. The nucleic acid molecules, polypeptides coded for by such molecules and peptides derived therefrom, as well as related antibodies and cytolytic T lymphocytes, are useful, *inter alia*, in diagnostic and therapeutic contexts.

10

Background of the Invention

The mechanism by which T cells recognize foreign materials has been implicated in cancer. A number of cytolytic T lymphocyte (CTL) clones directed against autologous melanoma antigens, testicular antigens, and melanocyte differentiation antigens have been described. In many instances, the antigens recognized by these clones have been characterized.

The use of autologous CTLs for identifying tumor antigens requires that the target cells which express the antigens can be cultured *in vitro* and that stable lines of autologous CTL clones which recognize the antigen-expressing cells can be isolated and propagated. While this approach has worked well for melanoma antigens, other tumor types, such as epithelial cancers including breast and colon cancer, have proved refractory to the approach.

More recently another approach to the problem has been described by Sahin et al. (*Proc. Natl. Acad. Sci. USA* 92:11810-11813, 1995). According to this approach, autologous antisera are used to identify immunogenic protein antigens expressed in cancer cells by screening expression libraries constructed from tumor cell cDNA. Antigen-encoding clones so identified have been found to have elicited an high-titer humoral immune response in the patients from which the antisera were obtained. Such a high-titer IgG response implies helper T cell recognition of the detected antigen. These tumor antigens can then be screened for the presence of MHC/HLA class I and class II motifs and reactivity with CTLs

The invention is elaborated upon in the disclosure which follows.

DOZODO, OSPANIO

30

25

30

WO 99/04265 PCT/US98/14679

-2-

Summary of the Invention

Autologous antibody screening has now been applied to cancer using antisera from cancer patients. Numerous cancer associated antigens have been identified. The invention provides, inter alia, isolated nucleic acid molecules, expression vectors containing those 5 molecules and host cells transfected with those molecules. The invention also provides isolated proteins and peptides, antibodies to those proteins and peptides and CTLs which recognize the proteins and peptides. Fragments including functional fragments and variants of the foregoing also are provided. Kits containing the foregoing molecules additionally are provided. The foregoing can be used in the diagnosis, monitoring, research, or treatment of conditions characterized by the expression of one or more cancer associated antigens.

Prior to the present invention, only a handful of cancer associated genes had been identified in the past 20 years. The invention involves the surprising discovery of many genes, some previously known and many previously unknown, which are expressed in individuals who have cancer. These individuals all have serum antibodies against the proteins (or fragments thereof) encoded by these genes. Thus, abnormally expressed genes are recognized by the host's immune system and therefore can form a basis for diagnosis, monitoring and therapy.

The invention involves the use of a single material, a plurality of different materials and even large panels and combinations of materials. For example, a single gene, a single protein encoded by a gene, a single functional fragment thereof, a single antibody thereto, etc. can be used in methods and products of the invention. Likewise, pairs, groups and even panels of these materials can be used for diagnosis, monitoring and therapy. The pairs, groups or panels can involve 2, 3, 4, 5... to as many as 25, 50, 100 or more genes, gene products, fragments thereof or agents that recognize such materials. A plurality of such materials are not only useful in monitoring, typing, characterizing and diagnosing cells abnormally expressing such genes, but a plurality of such materials can be used therapeutically. An example of the use of a plurality of such materials for the prevention, delay of onset, amelioration, etc. of cancer cells, which express or will express such genes prophylactically or acutely. Any and all combinations of the genes. gene products, and materials which recognize the genes and gene products can be tested and identified for use according to the invention. It would be far too lengthy to recite all such combinations; those skilled in the art, particularly in view of the teaching contained herein, will readily be able to determine which combinations are most appropriate for which circumstances.

As will be clear from the following discussion, the invention has in vivo and in vitro uses,

2.5

WO 99/04265 PCT/US98/14679

including for therapeutic, diagnostic, monitoring and research purposes. One aspect of the invention is the ability to fingerprint a cell expressing a number of the genes identified according to the invention. Such fingerprints will be characteristic, for example, of the stage of the cancer, the type of the cancer, or even the effect in animal models of a therapy on a cancer. Cells also can be screened to determine whether such cells abnormally express the genes identified according to the invention.

The invention, in one aspect, is a method of diagnosing a disorder characterized by expression of a cancer associated antigen precursor coded for by a nucleic acid molecule. The method involves the steps of contacting a biological sample isolated from a subject with an agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an expression product thereof complexed with an MHC, preferably an HLA, molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and determining the interaction between the agent and the nucleic acid molecule, the expression product or fragment of the expression product as a determination of the disorder.

In one embodiment the agent is selected from the group consisting of (a) a nucleic acid molecule comprising NA Group 1 nucleic acid molecules or a fragment thereof, (b) a nucleic acid molecule comprising NA Group 3 nucleic acid molecules or a fragment thereof, (c) a nucleic acid molecule comprising NA Group 17 nucleic acid molecules or a fragment thereof, (d) an antibody that binds to an expression product, or a fragment thereof, of NA group 1 nucleic acids, (e) an antibody that binds to an expression product, or a fragment thereof, of NA group 3 nucleic acids, (f) an antibody that binds to an expression product, or a fragment thereof, of NA group 17 nucleic acids, (g) and agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 1 nucleic acid, (h) an agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA group 3 nucleic acid, and (I) an agent that binds to a complex of an MHC, preferably HLA, molecule and a fragment of an expression product of a NA Group 17 nucleic acid.

The disorder may be characterized by expression of a plurality of cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which is specific for a different human cancer associated antigen precursor, and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 5, at least 6, at least 7, at least 8, at least 9 or at least 10 such agents.

25

WO 99/04265 PCT/US98/14679

- 4 -

In each of the above embodiments the agent may be specific for a human cancer associated antigen precursor that is a breast, a gastric, a lung, a prostate, a renal or a colon cancer associated antigen precursor.

In another aspect the invention is a method for determining regression, progression or

5 onset of a condition characterized by expression of abnormal levels of a protein encoded by a
nucleic acid molecule that is a NA Group 1 molecule. The method involves the steps of
monitoring a sample, from a subject who has or is suspected of having the condition, for a
parameter selected from the group consisting of (i) the protein, (ii) a peptide derived from the
protein, (iii) an antibody which selectively binds the protein or peptide, and (iv) cytolytic T

cells specific for a complex of the peptide derived from the protein and an MHC molecule, as
a determination of regression, progression or onset of said condition. In one embodiment the
sample is a body fluid, a body effusion or a tissue.

In another embodiment the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of (a) an antibody which selectively binds the protein of (i), or the peptide of (ii), (b) a protein or peptide which binds the antibody of (iii), and (c) a cell which presents the complex of the peptide and MHC molecule of (iv). In a preferred embodiment the antibody, the protein, the peptide or the cell is labeled with a radioactive label or an enzyme. The sample in a preferred embodiment is assayed for the peptide.

According to another embodiment the nucleic acid molecule is one of the following: a NA Group 3 molecule, a NA Group 11 molecule, a NA Group 12 molecule, a NA Group 13 molecule, a NA Group 14 molecule, a NA Group 15 molecule, or a NA Group 16 molecule. In yet another embodiment the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different of the plurality of proteins.

The invention in another aspect is a pharmaceutical preparation for a human subject. The pharmaceutical preparation includes an agent which when administered to the subject enriches selectively the presence of complexes of an HLA molecule and a human cancer associated antigen, and a pharmaceutically acceptable carrier, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule which comprises a NA Group 1 molecule. In one embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

25

WO 99/04265 PCT/US98/14679

The agent in one embodiment comprises a plurality of agents, each of which enriches selectively in the subject complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least two, at least three, at least four or at least 5 different such agents.

In another embodiment the agent is selected from the group consisting of (1) an isolated polypeptide comprising the human cancer associated antigen, or a functional variant thereof, (2) an isolated nucleic acid operably linked to a promoter for expressing the isolated polypeptide, or functional variant thereof, (3) a host cell expressing the isolated polypeptide, or functional variant thereof, and (4) isolated complexes of the polypeptide, or functional variant thereof, and an HLA molecule.

The agent may be a cell expressing an isolated polypeptide. In one embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell is nonproliferative. In another embodiment the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide. The cell can express one or both of the polypeptide and HLA molecule recombinantly. In another preferred embodiment the cell is nonproliferative. In yet another embodiment the agent is at least two, at least three, at least four or at least five different polypeptides, each representing a different human cancer associated antigen or functional variant thereof.

The agent in one embodiment is a PP Group 2 polypeptide. In other embodiments the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.

In an embodiment each of the pharmaceutical preparations described herein also includes an adjuvant.

According to another aspect the invention, a composition is provided of an isolated agent that binds selectively a PP Group 1 polypeptide. In separate embodiments the agent binds selectively to a polypeptide selected from the following: a PP Group 3 polypeptide, a PP Group 11 polypeptide, a PP Group 12 polypeptide, a PP Group 13 polypeptide, a PP Group 14 polypeptide, a PP Group 15 polypeptide, and a PP Group 16 polypeptide. In other embodiments, the agent is a plurality of different agents that bind selectively at least two, at least three, at least four, or at least five different such polypeptides. In each of the above described embodiments the agent may be an antibody.

10

WO 99/04265 PCT/US98/14679

- 6 -

In another aspect the invention is a composition of matter .composed of a conjugate of the agent of the above-described compositions of the invention and a therapeutic or diagnostic agent. Preferably the conjugate is of the agent and a therapeutic or diagnostic that is an antineoplastic.

The invention in another aspect is a pharmaceutical composition of an isolated nucleic acid molecule selected from the group consisting of: (1) NA Group 1 molecules, and (2) NA Group 2 molecules, and a pharmaceutically acceptable carrier. In one embodiment the isolated nucleic acid molecule comprises a NA Group 3 or NA Group 4 molecule. In another embodiment the isolated nucleic acid molecule comprises at least two isolated nucleic acid molecules coding for two different polypeptides, each polypeptide comprising a different cancer associated antigen.

Preferably the pharmaceutical composition also includes an expression vector with a promoter operably linked to the isolated nucleic acid molecule. In another embodiment the pharmaceutical composition also includes a host cell recombinantly expressing the isolated nucleic acid molecule.

According to another aspect of the invention a pharmaceutical composition is provided.

The pharmaceutical composition includes an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, and a pharmaceutically acceptable carrier. In one embodiment the isolated polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.

In another embodiment the isolated polypeptide comprises at least two different polypeptides, each comprising a different cancer associated antigen. In separate embodiments the isolated polypeptides are selected from the following: PP Group 11 polypeptides or HLA binding fragments thereof, PP Group 12 polypeptides or HLA binding fragments thereof, PP Group 13 polypeptides or HLA binding fragments thereof, PP Group 14 polypeptides or HLA binding fragments thereof, or PP Group 16 polypeptides or HLA binding fragments thereof, or

In an embodiment each of the pharmaceutical compositions described herein also includes an adjuvant.

Another aspect the invention is an isolated nucleic acid molecule comprising a NA Group 3 molecule. Another aspect the invention is an isolated nucleic acid molecule comprising a NA Group 4 molecule. In separate embodiments the isolated nucleic acid molecules are selected from the following: a Group 11 molecule or a functional fragment

thereof.

5

WO 99/04265 PCT/US98/14679

thereof, a Group 12 molecule or a functional fragment thereof, a Group 13 molecule or a functional fragment thereof, a Group 14 molecule or a functional fragment thereof, a Group 15 molecule or a functional fragment thereof, or a Group 16 molecule or a functional fragment

The invention in another aspect is an isolated nucleic acid molecule selected from the group consisting of (a) a fragment of a nucleic acid selected from the group of nucleic acid molecules consisting of SEQ ID numbered below and comprising all nucleic acid sequences among SEQ ID NOs 1-816, of sufficient length to represent a sequence unique within the human genome, and identifying a nucleic acid encoding a human cancer associated antigen precursor, (b) complements of (a), provided that the fragment includes a sequence of contiguous nucleotides which is not identical to any sequence selected from the sequence group consisting of (1) sequences having the GenBank accession numbers of the sequence Group 1, (2) complements of (1), and (3) fragments of (1) and (2).

In one embodiment the sequence of contiguous nucleotides is selected from the group consisting of: (1) at least two contiguous nucleotides nonidentical to the sequence Group 1, (2) at least three contiguous nucleotides nonidentical to the sequence Group 1, (3) at least four contiguous nucleotides nonidentical to the sequence Group 1, (4) at least five contiguous nucleotides nonidentical to the sequence Group 1, (5) at least six contiguous nucleotides nonidentical to the sequence Group 1, or (6) at least seven contiguous nucleotides nonidentical to the sequence Group 1.

In another embodiment the fragment has a size selected from the group consisting of at least: 8 nucleotides, 10 nucleotides, 12 nucleotides, 14 nucleotides, 16 nucleotides, 18 nucleotides, 20, nucleotides, 22 nucleotides, 24 nucleotides, 26 nucleotides, 28 nucleotides, 30 nucleotides, 50 nucleotides, 75 nucleotides, 100 nucleotides, 200 nucleotides, 1000 nucleotides and every integer length therebetween.

In yet another embodiment the molecule encodes a polypeptide which, or a fragment of which, binds a human HLA receptor or a human antibody.

Another aspect of the invention is an expression vector comprising an isolated nucleic acid molecule of the invention described above operably linked to a promoter.

According to one aspect the invention is an expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 2 molecule. In another aspect the invention is an expression vector comprising a NA Group 1 or Group 2 molecule

30

WO 99/04265 PCT/US98/14679

- 8 -

and a nucleic acid encoding an MHC, preferably HLA, molecule.

In yet another aspect the invention is a host cell transformed or transfected with an expression vector of the invention described above.

In another aspect the invention is a host cell transformed or transfected with an expression vector comprising an isolated nucleic acid molecule of the invention described above operably linked to a promoter, or an expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 1 or 2 molecule and further comprising a nucleic acid encoding HLA.

According to another aspect of the invention an isolated polypeptide encoded by the isolated nucleic acid molecules the invention, described above, is provided. These include PP Group 1-17 polypeptides. The invention also includes a fragment of the polypeptide which is immunogenic. In one embodiment the fragment, or a portion of the fragment, binds HLA or a human antibody.

The invention includes in another aspect an isolated fragment of a human cancer associated antigen precursor which, or portion of which, binds HLA or a human antibody, wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule. In one embodiment the fragment is part of a complex with HLA. In another embodiment the fragment is between 8 and 12 amino acids in length. In another embodiment the invention includes an isolated polypeptide comprising a fragment of the polypeptide of sufficient length to represent a sequence unique within the human genome and identifying a polypeptide that is a human cancer associated antigen precursor.

According to another aspect of the invention a kit for detecting the presence of the expression of a cancer associated antigen precursor is provided. The kit includes a pair of isolated nucleic acid molecules each of which consists essentially of a molecule selected from the group consisting of (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence of any of the NA Group 1 molecules and (b) complements of ("a"), wherein the contiguous segments are nonoverlapping. In one embodiment the pair of isolated nucleic acid molecules is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a NA Group 3 molecule. Preferably, the pair amplifies a human NA Group 3 molecule.

According to another aspect of the invention a method for treating a subject with a disorder characterized by expression of a human cancer associated antigen precursor is provided. The method includes the step of administering to the subject an amount of an agent,

30

WO 99/04265 PCT/US98/14679

which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of (a) a nucleic acid molecule comprising NA group 1 nucleic acid molecules, (b) a nucleic acid molecule comprising NA group 3 nucleic acid molecules, (c) a nucleic acid molecule comprising NA group 17 nucleic acid molecules.

In one embodiment the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which enriches selectively in the subject the presence of complexes of an HLA molecule and a different human cancer associated antigen. Preferably the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

In another embodiment the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, PP Group 5, PP Group 6,

15 PP Group 7, PP Group 8, PP Group 9, PP Group 10, PP Group 11, PP Group 12, PP Group 13, PP Group 14, PP Group 15, PP Group 16 and PP Group 17 polypeptides.

In yet another embodiment the disorder is cancer.

According to another aspect the invention is a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the subject. The method includes the steps of (I) removing an immunoreactive cell containing sample from the subject, (ii) contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor, (iii) introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from the group of nucleic acid molecules consisting of NA Group 1, NA Group 2, NA Group 3, NA Group 4, NA Group 5, NA Group 6, NA Group 7, NA Group 8, NA Group 9, NA Group 10, NA Group 11, NA Group 12, NA Group 13, NA Group 14, NA Group 15, NA Group 16, and NA Group 17.

In one embodiment the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen. In another embodiment the host cell endogenously

WO 99/04265 PCT/US98/14679

- 10 -

expresses an HLA molecule which binds the human cancer associated antigen.

The invention includes in another aspect a method for treating a subject having a condition characterized by expression of a cancer associated antigen precursor in cells of the subject. The method includes the steps of (I) identifying a nucleic acid molecule expressed by the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule (ii) transfecting a host cell with a nucleic acid selected from the group consisting of (a) the nucleic acid molecule identified, (b) a fragment of the nucleic acid identified which includes a segment coding for a cancer associated antigen, (c) deletions, substitutions or additions to (a) or (b), and (d) degenerates of (a), (b), or (c); (iii) culturing said transfected host cells to express the transfected nucleic acid molecule, and; (iv) introducing an amount of said host cells or an extract thereof to the subject effective to increase an immune response against the cells of the subject associated with the condition. Preferably, the antigen is a human antigen and the subject is a human.

In one embodiment the method also includes the step of (a) identifying an MHC molecule which presents a portion of an expression product of the nucleic acid molecule, wherein the host cell expresses the same MHC molecule as identified in (a) and wherein the host cell presents an MHC binding portion of the expression product of the nucleic acid molecule.

In another embodiment the method also includes the step of treating the host cells to render them non-proliferative.

In yet another embodiment the immune response comprises a B-cell response or a T cell response. Preferably the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human cancer associated antigen.

In another embodiment the nucleic acid molecule is a NA Group 3 molecule.

Another aspect of the invention is a method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule. The method includes the step of administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

25

30

WO 99/04265 PCT/US98/14679

- 11 -

In one embodiment the antibody is a monoclonal antibody. Preferably the monoclonal antibody is a chimeric antibody or a humanized antibody.

In another aspect the invention is a method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method involves the step of administering to a subject at least one of the pharmaceutical compositions of the invention described above in an amount effective to prevent, delay the onset of, or inhibit the condition in the subject. In one embodiment the condition is cancer. In another embodiment the method includes the step of first identifying that the subject expresses in a tissue abnormal amounts of the protein.

The invention in another aspect is a method for treating a subject having a condition characterized by expression of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method includes the steps of (I) identifying cells from the subject which express abnormal amounts of the protein; (ii) isolating a sample of the cells; (iii) cultivating the cells, and (iv) introducing the cells to the subject in an amount effective to provoke an immune response against the cells.

In one embodiment the cells express a protein selected from the group consisting of a PP Group 11 protein, a PP Group 12 protein, a PP Group 13 protein, PP Group 14 protein, a PP Group 15 protein and a PP Group 16 protein. In another embodiment the method includes the step of rendering the cells non-proliferative, prior to introducing them to the subject.

In another aspect the invention is a method for treating a pathological cell condition characterized by abnormal expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule. The method includes the step of administering to a subject in need thereof an effective amount of an agent which inhibits the expression or activity of the protein.

In one embodiment the agent is an inhibiting antibody which selectively binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody. In another embodiment the agent is an antisense nucleic acid molecule which selectively binds to the nucleic acid molecule which encodes the protein. In yet another important embodiment the nucleic acid molecule is a NA Group 3 nucleic acid molecule.

The invention includes in another aspect a composition of matter useful in stimulating an immune response to a plurality of a protein encoded by nucleic acid molecules that are NA Group 1 molecules. The composition is a plurality of peptides derived from the amino acid

sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.

In one embodiment at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto. In another embodiment the composition of matter includes an adjuvant. In another embodiment the adjuvant is a saponin, GM-CSF, or an interleukin.

According to another aspect the invention is an isolated antibody which selectively binds to a complex of: (I) a peptide derived from a protein encoded by a nucleic acid molecule that is a NA Group I molecule and (ii) and an MHC molecule to which binds the peptide to form the complex, wherein the isolated antibody does not bind to (I) or (ii) alone.

In one embodiment the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody.

The invention also involves the use of the genes, gene products, fragments thereof, agents which bind thereto, and so on in the preparation of medicaments. A particular medicament is for treating cancer and a more particular medicament is for treating breast cancer, lung cancer, renal cancer, colon cancer, prostate cancer or gastric cancer.

Detailed Description of the Invention

In the above summary and in the ensuing description, lists of sequences are provided. The lists are meant to embrace each single sequence separately, two or more sequences together where they form a part of the same gene, any combination of two or more sequences which relate to different genes, including and up to the total number on the list, as if each and every combination were separately and specifically enumerated. Likewise, when mentioning fragment size, it is intended that a range embrace the smallest fragment mentioned to the full-length of the sequence (-1 so that it is a fragment), each and every fragment length intended as if specifically enumerated. Thus, if a fragment could be between 10 and 15 in length, it is explicitly meant to mean 10, 11, 12, 13, 14, or 15 in length.

The summary and the claims mention antigen precursors and antigens. As used in the summary and in the claims, a precursor is substantially the full-length protein encoded by the coding region of the isolated DNA and the antigen is a peptide which complexes with MHC, preferably HLA, and which participates in the immune response as part of that complex. Such antigens are typically 9 amino acids long, although this may vary slightly.

WO 99/04265 PCT/US98/14679

- 13 -

As used herein, a subject is a human, non-human primate, cow, horse, pig, sheep, goat, dog, cat or rodent. In all embodiments human cancer antigens and human subjects are preferred.

The present invention in one aspect involves the cloning of cDNAs encoding human cancer associated antigen precursors using autologous antisera of subjects having cancer. The sequences of the clones representing genes identified according to the methods described herein are presented in the attached Sequence Listing, and the predicted amino acid sequences of some clones also are presented. Of the foregoing, it can be seen that some of the clones are considered completely novel as no nucleotide or amino acid homologies to coding regions were found in the databases searched. Other clones are novel but have some homology to sequences deposited in databases (mainly EST sequences). Nevertheless, the entire gene sequence was not previously known. In some cases no function was suspected and in other cases, even if a function was suspected, it was not know that the gene was associated with cancer. In all cases, it was not known or suspected that the gene encoded a cancer antigen which reacted with antibody from autologous sera. Analysis of the clone sequences by comparison to nucleic acid and protein databases determined that still other of the clones surprisingly are closely related to other previously-cloned genes. The sequences of these related genes is also presented in the Sequence Listing. The nature of the foregoing genes as encoding antigens recognized by the immune systems of cancer patients is, of course, unexpected.

The invention thus involves in one aspect cancer associated antigen polypeptides, genes encoding those polypeptides, functional modifications and variants of the foregoing, useful fragments of the foregoing, as well as diagnostics and therapeutics relating thereto.

Homologs and alleles of the cancer associated antigen nucleic acids of the invention can be identified by conventional techniques. Thus, an aspect of the invention is those nucleic acid sequences which code for cancer associated antigen precursors. Because this application contains so many sequences, the following chart is provided to identify the various groups of sequences discussed in the claims and in the summary:

"Nucleic Acid Sequences"

NA Group 1. (a) nucleic acid molecules which hybridize under stringent conditions to a molecule consisting of a nucleic acid sequence selected from the group consisting of nucleic acid sequences among SEO ID NOs 1-816 and which code for a cancer associated antigen precursor.

10

15

- (b) deletions, additions and substitutions which code for a respective cancer associated antigen precursor.
- (c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and
 - (d) complements of (a), (b) or (c).
- NA Group 2. Fragments of NA Group 1, which codes for a polypeptide which, or a portion of which, binds an MHC molecule to form a complex recognized by a an autologous antibody or lymphocyte.
- NA Group 3. The subset of NA Group 1 where the nucleotide sequence is selected from the group consisting of:
- (a) previously unknown human nucleic acids coding for a human cancer associated antigen precursor,
- (b) deletions, additions and substitutions which code for a respective human cancer associated antigen precursor,
- (c) nucleic acid molecules that differ from the nucleic acid molecules of (a) or (b) in codon sequence due to the degeneracy of the genetic code, and
 - (d) complements of (a), (b) or (c).
- NA Group 4. Fragments of NA Group 3, which code for a polypeptide which, or a portion of which, binds to an MHC molecule to form a complex recognized by an autologous antibody or lymphocyte.
- NA Group 5. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human breast cancer associated antigen precursor.
 - NA Group 6. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human colon cancer associated antigen precursor.
- NA Group 7. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human gastric cancer associated antigen precursor.

- 15 -

NA Group 8. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human lung cancer associated antigen precursor.

NA Group 9. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human renal cancer associated antigen precursor.

NA Group 10. A subset of NA Group 1, wherein the nucleic acid molecule codes for a human prostate cancer associated antigen precursor.

NA Group 11. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human breast cancer associated antigen precursor.

NA Group 12. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human colon cancer associated antigen precursor.

NA Group 13. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human gastric cancer associated antigen precursor.

NA Group 14. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human lung cancer associated antigen precursor.

NA Group 15. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human renal cancer associated antigen precursor.

25 NA Group 16. A subset of NA Group 3, wherein the nucleic acid molecule codes for a human prostate cancer associated antigen precursor.

NA Group 17. A subset of NA Group 1, comprising human cancer associated antigens that react with allogenic cancer antisera.

30

TOTEPOPO DEDVOD

15

Polypeptide Sequences

PP Group 1. Polypeptides encoded by NA Group 1.

WO 99/04265 PCT/US98/14679
- 16 -

PP Group 2. Polypeptides encoded by NA Group 2

PP Group 3. Polypeptides encoded by NA Group 3.

PP Group 4. Polypeptides encoded by NA Group 4.

PP Group 5. Polypeptides encoded by NA Group 5.

5 PP Group 6. Polypeptides encoded by NA Group 6.

PP Group 7. Polypeptides encoded by NA Group 7.

PP Group 8. Polypeptides encoded by NA Group 8.

PP Group 9. Polypeptides encoded by NA Group 9.

PP Group 10. Polypeptides encoded by NA Group 10.

PP Group 11. Polypeptides encoded by NA Group 11.

PP Group 12. Polypeptides encoded by NA Group 12.

PP Group 13. Polypeptides encoded by NA Group 13.

PP Group 14. Polypeptides encoded by NA Group 14.

PP Group 15. Polypeptides encoded by NA Group 15.

PP Group 16. Polypeptides encoded by NA Group 16.

PP Group 17. Polypeptides encoded by NA Group 17.

The term "stringent conditions" as used herein refers to parameters with which the art is familiar. Nucleic acid hybridization parameters may be found in references which compile such methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds., Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989, or *Current Protocols in Molecular Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons, Inc., New York. More specifically, stringent conditions, as used herein, refers, for example, to hybridization at 65°C in hybridization buffer (3.5 x SSC, 0.02% Ficoll, 0.02% polyvinyl pyrrolidone, 0.02% Bovine Serum Albumin, 2.5mM NaH₂PO₄(pH7), 0.5% SDS, 2mM EDTA). SSC is 0.15M sodium chloride/0.15M sodium citrate, pH7; SDS is sodium dodecyl sulphate; and EDTA is ethylenediaminetetracetic acid. After hybridization, the membrane upon which the DNA is transferred is washed, for example, in 2 x SSC at room temperature and then at 0.1 - 0.5 x SSC/0.1 x SDS at temperatures up to 68°C.

There are other conditions, reagents, and so forth which can be used, which result in a similar degree of stringency. The skilled artisan will be familiar with such conditions, and thus they are not given here. It will be understood, however, that the skilled artisan will be able to

25

30

5

WO 99/04265 PCT/US98/14679

manipulate the conditions in a manner to permit the clear identification of homologs and alleles of cancer associated antigen nucleic acids of the invention (e.g., by using lower stringency conditions). The skilled artisan also is familiar with the methodology for screening cells and libraries for expression of such molecules which then are routinely isolated, followed by isolation of the pertinent nucleic acid molecule and sequencing.

In general homologs and alleles typically will share at least 40% nucleotide identity and/or at least 50% amino acid identity to the sequences of breast cancer associated antigen nucleic acid and polypeptides, respectively, in some instances will share at least 50% nucleotide identity and/or at least 65% amino acid identity and in still other instances will share at least 66% nucleotide identity and/or at least 75% amino acid identity. The homology can be calculated using various, publicly available software tools developed by NCBI (Bethesda, Maryland) that can be obtained through the internet (ftp:/ncbi.nlm.nih.gov/pub/). Exemplary tools include the BLAST system available at http://wwww.ncbi.nlm.nih.gov. Pairwise and ClustalW alignments (BLOSUM30 matrix setting) as well as Kyte-Doolittle hydropathic analysis can be obtained using the MacVetor sequence analysis software (Oxford Molecular Group). Watson-Crick complements of the foregoing nucleic acids also are embraced by the invention.

In screening for cancer associated antigen genes, a Southern blot may be performed using the foregoing conditions, together with a radioactive probe. After washing the membrane to which the DNA is finally transferred, the membrane can be placed against X-ray film to detect the radioactive signal. In screening for the expression of cancer associated antigen nucleic acids, Northern blot hybridizations using the foregoing conditions (see also the Examples) can be performed on samples taken from breast cancer patients or subjects suspected of having a condition characterized by expression of breast cancer associated antigen genes. Amplification protocols such as polymerase chain reaction using primers which hybridize to the sequences presented also can be used for detection of the cancer associated antigen genes or expression thereof.

The breast cancer associated genes correspond to SEQ ID NOs. 1-40 and 66. The preferred breast cancer associated antigens for the methods of diagnosis disclosed herein are those set forth in SEQ ID NOs:[31, 33 and 34], which were found to react with allogeneic breast cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The colon cancer associated genes correspond to SEQ ID Nos. 544-586, even numbers

WO 99/04265 PCT/US98/14679

- 18 -

only. The preferred colon cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic colon cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The gastric cancer associated genes correspond to SEQ ID NOs 176-436 and 588-674.

The preferred gastric cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic gastric cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The renal cancer associated genes correspond to SEQ ID Nos. 89-169, odd numbers only, and 170, 172, and 174. The preferred renal cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic renal cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The lung cancer associated genes correspond to SEQ ID Nos. 689, 691, 692, 694, 696-707, 709, 711, and 712. The preferred lung cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic lung cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The prostate cancer associated genes correspond to SEQ ID NOs 437-543. The preferred prostate cancer associated antigens for the methods of diagnosis disclosed herein are those, which were found to react with allogeneic prostate cancer antisera. Encoded polypeptides (e.g., proteins), peptides and antisera thereto are also preferred for diagnosis.

The invention also includes degenerate nucleic acids which include alternative codons to those present in the native materials. For example, serine residues are encoded by the codons TCA, AGT, TCC, TCG, TCT and AGC. Each of the six codons is equivalent for the purposes of encoding a serine residue. Thus, it will be apparent to one of ordinary skill in the art that any of the serine-encoding nucleotide triplets may be employed to direct the protein synthesis apparatus, in vitro or in vivo, to incorporate a serine residue into an elongating breast cancer associated antigen polypeptide. Similarly, nucleotide sequence triplets which encode other amino acid residues include, but are not limited to: CCA, CCC, CCG and CCT (proline codons); CGA, CGC, CGG, CGT, AGA and AGG (arginine codons); ACA, ACC, ACG and ACT (threonine codons); AAC and AAT (asparagine codons); and ATA, ATC and ATT (isoleucine codons). Other amino acid residues may be encoded similarly by multiple nucleotide sequences. Thus,

PCT/US98/14679 WO 99/04265

- 19 -

the invention embraces degenerate nucleic acids that differ from the biologically isolated nucleic acids in codon sequence due to the degeneracy of the genetic code.

The invention also provides isolated unique fragments of cancer associated antigen nucleic acid sequences or complements thereof. A unique fragment is one that is a 'signature' for the larger 5 nucleic acid. It, for example, is long enough to assure that its precise sequence is not found in molecules within the human genome outside of the cancer associated antigen nucleic acids defined above (and human alleles). Those of ordinary skill in the art may apply no more than routine procedures to determine if a fragment is unique within the human genome. Unique fragments, however, exclude fragments completely composed of the nucleotide sequences of any of GenBank accession numbers listed in Table 1 or other previously published sequences as of the filing date of the priority documents for sequences listed in a respective priority document or the filing date of this application for sequences listed for the first time in this application which overlap the sequences of the invention.

A fragment which is completely composed of the sequence described in the foregoing GenBank deposits is one which does not include any of the nucleotides unique to the sequences of the invention. Thus, a unique fragment must contain a nucleotide sequence other than the exact sequence of those in GenBank or fragments thereof. The difference may be an addition, deletion or substitution with respect to the GenBank sequence or it may be a sequence wholly separate from the GenBank sequence.

Unique fragments can be used as probes in Southern and Northern blot assays to identify such nucleic acids, or can be used in amplification assays such as those employing PCR. As known to those skilled in the art, large probes such as 200, 250, 300 or more nucleotides are preferred for certain uses such as Southern and Northern blots, while smaller fragments will be preferred for uses such as PCR. Unique fragments also can be used to produce fusion proteins for generating antibodies or determining binding of the polypeptide fragments, or for generating immunoassay components. Likewise, unique fragments can be employed to produce nonfused fragments of the cancer associated antigen polypeptides, useful, for example, in the preparation of antibodies, and in immunoassays. Unique fragments further can be used as antisense molecules to inhibit the expression of cancer associated antigen nucleic acids and polypeptides, particularly for therapeutic purposes as described in greater detail below.

WO 99/04265 PCT/US98/14679

- 20 -

As will be recognized by those skilled in the art, the size of the unique fragment will depend upon its conservancy in the genetic code. Thus, some regions of cancer associated antigen sequences and complements thereof will require longer segments to be unique while others will require only short segments, typically between 12 and 32 nucleotides (e.g. 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 and 32 or more bases long, up to the entire length of the disclosed sequence. As mentioned above, this disclosure intends to embrace each and every fragment of each sequence, beginning at the first nucleotide, the second nucleotide and so on, up to 8 nucleotides short of the end, and ending anywhere from nucleotide number 8, 9, 10 and so on for each sequence, up to the very last nucleotide, (provided the sequence is unique as described above).

Virtually any segment of the polypeptide coding region of novel cancer associated antigen nucleic acids, or complements thereof, that is 18 or more nucleotides in length will be unique. Those skilled in the art are well versed in methods for selecting such sequences, typically on the basis of the ability of the unique fragment to selectively distinguish the sequence of interest from other sequences in the human genome of the fragment to those on known databases typically is all that is necessary, although *in vitro* confirmatory hybridization and sequencing analysis may be performed. Especially preferred include nucleic acids encoding a series of epitopes, known as "polytopes". The epitopes can be arranged in sequential or overlapping fashion (*see, e.g.*, Thomson et al., *Proc. Natl. Acad. Sci. USA* 92:5845-5849, 1995; Gilbert et al., *Nature Biotechnol.* 15:1280-1284, 1997), with or without the natural flanking sequences, and can be separated by unrelated linker sequences if desired. The polytope is processed to generated individual epitopes which are recognized by the immune system for generation of immune responses.

Thus, for example, peptides derived from a polypeptide having an amino acid sequence encoded by one of the nucleic acid disclosed herein, and which are presented by MHC molecules and recognized by CTL or T helper lymphocytes, can be combined with peptides from one or more other cancer associated antigens (e.g. by preparation of hybrid nucleic acids or polypeptides) to form "polytopes". The two or more peptides (or nucleic acids encoding the peptides) can be selected from those described herein, or they can include one or more peptides of previously known cancer associated antigens. Exemplary cancer associated peptide antigens that can be administered to induce or enhance an immune response are derived from tumor associated genes and encoded proteins including MAGE-1, MAGE-2, MAGE-3, MAGE-4, MAGE-5, MAGE-6, MAGE-7.

MAGE-8, MAGE-9, MAGE-10, MAGE-11, GAGE-1, GAGE-2, GAGE-3, GAGE-4, GAGE-5, GAGE-6, BAGE-1, RAGE-1, LB33/MUM-1, PRAME, NAG, MAGE-Xp2, MAGE-Xp3, MAGE-Xp4, tyrosinase, brain glycogen phosphorylase, Melan-A, and MAGE-C1. See, for example, PCT application publication no. WO96/10577. Other examples will be known to one of ordinary skill in the art (for example, see Coulie, Stem Cells 13:393-403, 1995), and can be used in the invention in a like manner as those disclosed herein. One of ordinary skill in the art can prepare polypeptides comprising one or more peptides and one or more of the foregoing cancer associated peptides, or nucleic acids encoding such polypeptides, according to standard procedures of molecular biology.

Thus polytopes are groups of two or more potentially immunogenic or immune response stimulating peptides which can be joined together in various arrangements (e.g. concatenated, overlapping). The polytope (or nucleic acid encoding the polytope) can be administered in a standard immunization protocol, e.g. to animals, to test the effectiveness of the polytope in stimulating, enhancing and/or provoking an immune response.

The peptides can be joined together directly or via the use of flanking sequences to form polytopes, and the use of polytopes as vaccines is well known in the art (see, e.g., Thomson et al., Proc. Acad. Natl. Acad. Sci USA 92(13):5845-5849, 1995; Gilbert et al., Nature Biotechnol.

15(12):1280-1284, 1997; Thomson et al., J. Immunol. 157(2):822-826, 1996; Tam et al., J. Exp. Med. 171(1):299-306, 1990).for example, Tam showed that polytopes consisting of both MHC class I and class II binding epitopes successfully generated antibody and protective immunity in a mouse model. Tam also demonstrated that polytopes comprising "strings" of epitopes are processed to yield individual epitopes which are presented by MHC molecules and recognized by CTLs. Thus polytopes containing various numbers and combinations of epitopes can be prepared and tested for recognition by CTLs and for efficacy in increasing an immune response.

It is known that tumors express a set of tumor antigens, of which only certain subsets may be expressed in the tumor of any given patient (for examples of this, see the Examples below). Polytopes can be prepared which correspond to the different combination of epitopes representing the subset of tumor rejection antigens expressed in a particular patient. Polytopes also can be prepared to reflect a broader spectrum of tumor rejection antigens known to be expressed by a tumor type. Polytopes can be introduced to a patient in need of such treatment as polypeptide structures, or via the use of nucleic acid delivery systems known in the art (see, e.g., Allsopp et al., Eur. J.

WO 99/04265 PCT/US98/14679

- 22 -

Immunol. 26(8):1951-1959, 1996). Adenovirus, pox virus, Ty-virus like particles, adeno-associated virus, plasmids, bacteria, etc. can be used in such delivery. One can test the polytope delivery systems in mouse models to determine efficacy of the delivery system. The systems also can be tested in human clinical trials.

In instances in which a human HLA class I molecule presents tumor rejection antigens derived from cancer associated nucleic acids, the expression vector may also include a nucleic acid sequence coding for the HLA molecule that presents any particular tumor rejection antigen derived from these nucleic acids and polypeptides. Alternatively, the nucleic acid sequence coding for such a HLA molecule can be contained within a separate expression vector. In a situation where the vector contains both coding sequences, the single vector can be used to transfect a cell which does not normally express either one. Where the coding sequences for a cancer associated antigen precursor and the HLA molecule which presents it are contained on separate expression vectors, the expression vectors can be cotransfected. The cancer associated antigen precursor coding sequence may be used alone, when, e.g. the host cell already expresses a HLA molecule which presents a cancer associated antigen derived from precursor molecules. Of course, there is no limit on the particular host cell which can be used. As the vectors which contain the two coding sequences may be used in any antigen-presenting cells if desired, and the gene for cancer associated antigen precursor can be used in host cells which do not express a HLA molecule which presents a cancer associated antigen. Further, cell-free transcription systems may be used in lieu of cells.

As mentioned above, the invention embraces antisense oligonucleotides that selectively bind to a nucleic acid molecule encoding a cancer associated antigen polypeptide, to reduce the expression of cancer associated antigens. This is desirable in virtually any medical condition wherein a reduction of expression of cancer associated antigens is desirable, e.g., in the treatment of cancer. This is also useful for *in vitro* or *in vivo* testing of the effects of a reduction of expression of one or more cancer associated antigens.

As used herein, the term "antisense oligonucleotide" or "antisense" describes an oligonucleotide that is an oligoribonucleotide, oligodeoxyribonucleotide, modified oligoribonucleotide, or modified oligodeoxyribonucleotide which hybridizes under physiological conditions to DNA comprising a particular gene or to an mRNA transcript of that gene and, thereby, inhibits the transcription of that gene and/or the translation of that mRNA. The antisense molecules

WO 99/04265 PCT/US98/14679

- 23 -

are designed so as to interfere with transcription or translation of a target gene upon hybridization with the target gene or transcript. Those skilled in the art will recognize that the exact length of the antisense oligonucleotide and its degree of complementarity with its target will depend upon the specific target selected, including the sequence of the target and the particular bases which comprise that sequence. It is preferred that the antisense oligonucleotide be constructed and arranged so as to bind selectively with the target under physiological conditions, i.e., to hybridize substantially more to the target sequence than to any other sequence in the target cell under physiological conditions. Based upon the sequences of nucleic acids encoding breast cancer associated antigen, or upon allelic or homologous genomic and/or cDNA sequences, one of skill in the art can easily choose and synthesize any of a number of appropriate antisense molecules for use in accordance with the present invention. In order to be sufficiently selective and potent for inhibition, such antisense oligonucleotides should comprise at least 10 and, more preferably, at least 15 consecutive bases which are complementary to the target, although in certain cases modified oligonucleotides as short as 7 bases in length have been used successfully as antisense oligonucleotides (Wagner et al., Nature Biotechnol. 14:840-844, 1996). Most preferably, the antisense oligonucleotides comprise a complementary sequence of 20-30 bases. Although oligonucleotides may be chosen which are antisense to any region of the gene or mRNA transcripts, in preferred embodiments the antisense oligonucleotides correspond to N-terminal or 5' upstream sites such as translation initiation, transcription initiation or promoter sites. In addition, 3'-untranslated regions may be targeted. Targeting to mRNA splicing sites has also been used in the art but may be less preferred if alternative mRNA splicing occurs. In addition, the antisense is targeted, preferably, to sites in which mRNA secondary structure is not expected (see, e.g., Sainio et al., Cell Mol. Neurobiol. 14(5):439-457, 1994) and at which proteins are not expected to bind. Finally, although the listed sequences are cDNA sequences, one of ordinary skill in the art may easily derive the genomic DNA corresponding to the cDNA of a cancer associated antigen. Thus, the present invention also provides for antisense oligonucleotides which are complementary to the genomic DNA corresponding to nucleic acids encoding breast cancer associated antigens. Similarly, antisense to allelic or homologous cDNAs and genomic DNAs are enabled without undue experimentation.

In one set of embodiments, the antisense oligonucleotides of the invention may be composed of "natural" deoxyribonucleotides, ribonucleotides, or any combination thereof. That is, the 5' end

5

WO 99/04265 PCT/US98/14679

- 24 -

of one native nucleotide and the 3' end of another native nucleotide may be covalently linked, as in natural systems, via a phosphodiester internucleoside linkage. These oligonucleotides may be prepared by art recognized methods which may be carried out manually or by an automated synthesizer. They also may be produced recombinantly by vectors.

In preferred embodiments, however, the antisense oligonucleotides of the invention also may include "modified" oligonucleotides. That is, the oligonucleotides may be modified in a number of ways which do not prevent them from hybridizing to their target but which enhance their stability or targeting or which otherwise enhance their therapeutic effectiveness.

The term "modified oligonucleotide" as used herein describes an oligonucleotide in which (1) at least two of its nucleotides are covalently linked via a synthetic internucleoside linkage (i.e., a linkage other than a phosphodiester linkage between the 5' end of one nucleotide and the 3' end of another nucleotide) and/or (2) a chemical group not normally associated with nucleic acids has been covalently attached to the oligonucleotide. Preferred synthetic internucleoside linkages are phosphorothioates, alkylphosphonates, phosphorodithioates, phosphate esters, alkylphosphonothioates, phosphoramidates, carbamates, carbamates, phosphate triesters, acctamidates, carboxymethyl esters and pentides.

The term "modified oligonucleotide" also encompasses oligonucleotides with a covalently modified base and/or sugar. For example, modified oligonucleotides include oligonucleotides having backbone sugars which are covalently attached to low molecular weight organic groups other than a hydroxyl group at the 3' position and other than a phosphate group at the 5' position. Thus modified oligonucleotides may include a 2'-O-alkylated ribose group. In addition, modified oligonucleotides may include sugars such as arabinose instead of ribose. The present invention, thus, contemplates pharmaceutical preparations containing modified antisense molecules that are complementary to and hybridizable with, under physiological conditions, nucleic acids encoding breast cancer associated antigen polypeptides, together with pharmaceutically acceptable carriers.

Antisense oligonucleotides may be administered as part of a pharmaceutical composition.

Such a pharmaceutical composition may include the antisense oligonucleotides in combination with any standard physiologically and/or pharmaceutically acceptable carriers which are known in the art. The compositions should be sterile and contain a therapeutically effective amount of the antisense oligonucleotides in a unit of weight or volume suitable for administration to a patient. The term

WO 99/04265

30

10

"pharmaceutically acceptable" means a non-toxic material that does not interfere with the effectiveness of the biological activity of the active ingredients. The term "physiologically acceptable" refers to a non-toxic material that is compatible with a biological system such as a cell, cell culture, tissue, or organism. The characteristics of the carrier will depend on the route of administration. Physiologically and pharmaceutically acceptable carriers include diluents, fillers, salts, buffers, stabilizers, solubilizers, and other materials which are well known in the art, as further described below.

As used herein, a "vector" may be any of a number of nucleic acids into which a desired sequence may be inserted by restriction and ligation for transport between different genetic environments or for expression in a host cell. Vectors are typically composed of DNA although RNA vectors are also available. Vectors include, but are not limited to, plasmids, phagemids and virus genomes. A cloning vector is one which is able to replicate in a host cell, and which is further characterized by one or more endonuclease restriction sites at which the vector may be cut in a determinable fashion and into which a desired DNA sequence may be ligated such that the new recombinant vector retains its ability to replicate in the host cell. In the case of plasmids, replication of the desired sequence may occur many times as the plasmid increases in copy number within the host bacterium or just a single time per host before the host reproduces by mitosis. In the case of phage, replication may occur actively during a lytic phase or passively during a lysogenic phase. An expression vector is one into which a desired DNA sequence may be inserted by restriction and ligation such that it is operably joined to regulatory sequences and may be expressed as an RNA transcript. Vectors may further contain one or more marker sequences suitable for use in the identification of cells which have or have not been transformed or transfected with the vector. Markers include, for example, genes encoding proteins which increase or decrease either resistance or sensitivity to antibiotics or other compounds, genes which encode enzymes whose activities are detectable by standard assays known in the art (e.g., \(\beta\)-galactosidase or alkaline phosphatase), and genes which visibly affect the phenotype of transformed or transfected cells, hosts, colonies or plaques (e.g., green fluorescent protein). Preferred vectors are those capable of autonomous replication and expression of the structural gene products present in the DNA segments to which they are operably joined.

As used herein, a coding sequence and regulatory sequences are said to be "operably" joined

WO 99/04265 PCT/US98/14679

- 26 -

when they are covalently linked in such a way as to place the expression or transcription of the coding sequence under the influence or control of the regulatory sequences. If it is desired that the coding sequences be translated into a functional protein, two DNA sequences are said to be operably joined if induction of a promoter in the 5' regulatory sequences results in the transcription of the coding sequence and if the nature of the linkage between the two DNA sequences does not (1) result in the introduction of a frame-shift mutation, (2) interfere with the ability of the promoter region to direct the transcription of the coding sequences, or (3) interfere with the ability of the corresponding RNA transcript to be translated into a protein. Thus, a promoter region would be operably joined to a coding sequence if the promoter region were capable of effecting transcription of that DNA sequence such that the resulting transcript might be translated into the desired protein or polypeptide.

The precise nature of the regulatory sequences needed for gene expression may vary between species or cell types, but shall in general include, as necessary, 5' non-transcribed and 5' non-translated sequences involved with the initiation of transcription and translation respectively, such as a TATA box, capping sequence, CAAT sequence, and the like. Especially, such 5' non-transcribed regulatory sequences will include a promoter region which includes a promoter sequence for transcriptional control of the operably joined gene. Regulatory sequences may also include enhancer sequences or upstream activator sequences as desired. The vectors of the invention may optionally include 5' leader or signal sequences. The choice and design of an appropriate vector is within the ability and discretion of one of ordinary skill in the art.

Expression vectors containing all the necessary elements for expression are commercially available and known to those skilled in the art. See, e.g., Sambrook et al., Molecular Cloning: A Laboratory Manual, Second Edition, Cold Spring Harbor Laboratory Press, 1989. Cells are genetically engineered by the introduction into the cells of heterologous DNA (RNA) encoding a breast cancer associated antigen polypeptide or fragment or variant thereof. That heterologous DNA (RNA) is placed under operable control of transcriptional elements to permit the expression of the heterologous DNA in the host cell.

Preferred systems for mRNA expression in mammalian cells are those such as pRc/CMV (available from Invitrogen, Carlsbad, CA) that contain a selectable marker such as a gene that confers G418 resistance (which facilitates the selection of stably transfected cell lines) and the

10

WO 99/04265 PCT/US98/14679

- 27 -

human cytomegalovirus (CMV) enhancer-promoter sequences. Additionally, suitable for expression in primate or canine cell lines is the pCEP4 vector (Invitrogen), which contains an Epstein Barr Virus (EBV) origin of replication, facilitating the maintenance of plasmid as a multicopy extrachromosomal element. Another expression vector is the pEF-BOS plasmid containing the promoter of polypeptide Elongation Factor 1α, which stimulates efficiently transcription in vitro. The plasmid is described by Mishizuma and Nagata (Nuc. Acids Res. 18:5322, 1990), and its use in transfection experiments is disclosed by, for example, Demoulin (Mol. Cell. Biol. 16:4710-4716, 1996). Still another preferred expression vector is an adenovirus, described by Stratford-Perricaudet, which is defective for E1 and E3 proteins (J. Clin. Invest. 90:626-630, 1992). The use of the adenovirus as an Adeno.P1A recombinant for the expression of an antigen is disclosed by Warnier et al., in intradermal injection in mice for immunization against P1A (Int. J. Cancer, 67:303-310, 1996). Additional vectors for delivery of nucleic acid are provided below.

The invention also embraces so-called expression kits, which allow the artisan to prepare a desired expression vector or vectors. Such expression kits include at least separate portions of a vector and one or more of the previously discussed breast cancer associated antigen nucleic acid molecules. Other components may be added, as desired, as long as the previously mentioned nucleic acid molecules, which are required, are included. The invention also includes kits for amplification of a breast cancer associated antigen nucleic acid, including at least one pair of amplification primers which hybridize to a breast cancer associated antigen nucleic acid. The primers preferably are 12-32 nucleotides in length and are non-overlapping to prevent formation of "primer-dimers". One of the primers will hybridize to one strand of the breast cancer associated antigen nucleic acid and the second primer will hybridize to the complementary strand of the breast cancer associated antigen nucleic acid, in an arrangement which permits amplification of the breast cancer associated antigen nucleic acid. Selection of appropriate primer pairs is standard in the art.

For example, the selection can be made with assistance of a computer program designed for such a purpose, optionally followed by testing the primers for amplification specificity and efficiency.

The invention also permits the construction of cancer associated antigen gene "knock-outs" in cells and in animals, providing materials for studying certain aspects of cancer and immune system responses to cancer.

The invention also provides isolated polypeptides (including whole proteins and partial

30

10

WO 99/04265 PCT/US98/14679

- 28 -

proteins) encoded by the foregoing cancer associated antigen nucleic acids. Such polypeptides are useful, for example, alone or as fusion proteins to generate antibodies, as components of an immunoassay or diagnostic assay or as therapeutics. Cancer associated antigen polypeptides can be isolated from biological samples including tissue or cell homogenates, and can also be expressed recombinantly in a variety of prokaryotic and eukaryotic expression systems by constructing an expression vector appropriate to the expression system, introducing the expression vector into the expression system, and isolating the recombinantly expressed protein. Short polypeptides, including antigenic peptides (such as are presented by MHC molecules on the surface of a cell for immune recognition) also can be synthesized chemically using well-established methods of peptide synthesis.

A unique fragment of a cancer associated antigen polypeptide, in general, has the features and characteristics of unique fragments as discussed above in connection with nucleic acids. As will be recognized by those skilled in the art, the size of the unique fragment will depend upon factors such as whether the fragment constitutes a portion of a conserved protein domain. Thus, some regions of breast cancer associated antigens will require longer segments to be unique while others will require only short segments, typically between 5 and 12 amino acids (e.g. 5, 6, 7, 8, 9, 10, 11 or 12 or more, including each integer up to the full length, amino acids lone).

Unique fragments of a polypeptide preferably are those fragments which retain a distinct functional capability of the polypeptide. Functional capabilities which can be retained in a unique fragment of a polypeptide include interaction with antibodies, interaction with other polypeptides or fragments thereof, selective binding of nucleic acids or proteins, and enzymatic activity. One important activity is the ability to act as a signature for identifying the polypeptide. Another is the ability to complex with HLA and to provoke in a human an immune response. Those skilled in the art are well versed in methods for selecting unique amino acid sequences, typically on the basis of the ability of the unique fragment to selectively distinguish the sequence of interest from non-family members. A comparison of the sequence of the fragment to those on known databases typically is all that is necessary.

The invention embraces variants of the cancer associated antigen polypeptides described above. As used herein, a "variant" of a cancer associated antigen polypeptide is a polypeptide which contains one or more modifications to the primary amino acid sequence of a cancer associated antigen polypeptide. Modifications which create a cancer associated antigen variant can be made to

30

a cancer associated antigen polypeptide 1) to reduce or eliminate an activity of a cancer associated antigen polypeptide; 2) to enhance a property of a cancer associated antigen polypeptide, such as protein stability in an expression system or the stability of protein-protein binding; 3) to provide a novel activity or property to a cancer associated antigen polypeptide, such as addition of an antigenic epitope or addition of a detectable moiety; or 4) to provide equivalent or better binding to an HLA molecule. Modifications to a cancer associated antigen polypeptide are typically made to the nucleic acid which encodes the cancer associated antigen polypeptide, and can include deletions. point mutations, truncations, amino acid substitutions and additions of amino acids or non-amino acid mojeties. Alternatively, modifications can be made directly to the polypeptide, such as by cleavage, addition of a linker molecule, addition of a detectable moiety, such as biotin, addition of a fatty acid, and the like. Modifications also embrace fusion proteins comprising all or part of the cancer associated antigen amino acid sequence. One of skill in the art will be familiar with methods for predicting the effect on protein conformation of a change in protein sequence, and can thus "design" a variant cancer associated antigen polypeptide according to known methods. One example of such a method is described by Dahiyat and Mayo in Science 278:82-87, 1997, whereby proteins can be designed de novo. The method can be applied to a known protein to vary a only a portion of the polypeptide sequence. By applying the computational methods of Dahiyat and Mayo. specific variants of a cancer associated antigen polypeptide can be proposed and tested to determine whether the variant retains a desired conformation.

In general, variants include cancer associated antigen polypeptides which are modified specifically to alter a feature of the polypeptide unrelated to its desired physiological activity. For example, cysteine residues can be substituted or deleted to prevent unwanted disulfide linkages. Similarly, certain amino acids can be changed to enhance expression of a breast cancer associated antigen polypeptide by eliminating proteolysis by proteases in an expression system (e.g., dibasic amino acid residues in yeast expression systems in which KEX2 protease activity is present).

Mutations of a nucleic acid which encode a cancer associated antigen polypeptide preferably preserve the amino acid reading frame of the coding sequence, and preferably do not create regions in the nucleic acid which are likely to hybridize to form secondary structures, such a hairpins or loops, which can be deleterious to expression of the variant polypeptide.

Mutations can be made by selecting an amino acid substitution, or by random mutagenesis of

WO 99/04265 PCT/US98/14679

- 30 -

a selected site in a nucleic acid which encodes the polypeptide. Variant polypeptides are then expressed and tested for one or more activities to determine which mutation provides a variant polypeptide with the desired properties. Further mutations can be made to variants (or to non-variant cancer associated antigen polypeptides) which are silent as to the amino acid sequence of the polypeptide, but which provide preferred codons for translation in a particular host. The preferred codons for translation of a nucleic acid in, e.g., *E. coli*, are well known to those of ordinary skill in the art. Still other mutations can be made to the noncoding sequences of a cancer associated antigen gene or cDNA clone to enhance expression of the polypeptide. The activity of variants of cancer associated antigen polypeptides can be tested by cloning the gene encoding the variant cancer associated antigen polypeptide into a bacterial or mammalian expression vector, introducing the vector into an appropriate host cell, expressing the variant cancer associated antigen polypeptide, and testing for a functional capability of the cancer associated antigen polypeptides as disclosed herein. For example, the variant cancer associated antigen polypeptide can be tested for reaction with autologous or allogeneic sera as disclosed in the Examples. Preparation of other variant polypeptides may favor testing of other activities, as will be known to one of ordinary skill in the art.

The skilled artisan will also realize that conservative amino acid substitutions may be made in cancer associated antigen polypeptides to provide functionally equivalent variants of the foregoing polypeptides, i.e, the variants retain the functional capabilities of the cancer associated antigen polypeptides. As used herein, a "conservative amino acid substitution" refers to an amino acid substitution which does not alter the relative charge or size characteristics of the protein in which the amino acid substitution is made. Variants can be prepared according to methods for altering polypeptide sequence known to one of ordinary skill in the art such as are found in references which compile such methods, e.g. *Molecular Cloning: A Laboratory Manual*, J. Sambrook, et al., eds., Second Edition, Cold Spring Harbor Laboratory Press, Cold Spring Harbor, New York, 1989, or *Current Protocols in Molecular Biology*, F.M. Ausubel, et al., eds., John Wiley & Sons, Inc., New York. Exemplary functionally equivalent variants of the cancer associated antigen polypeptides include conservative amino acid substitutions of amino acids include substitutions made amongst amino acids within the following groups: (a) M, I, L, V; (b) F, Y, W; (c) K, R, H; (d) A, G; (e) S, T; (f) O, N; and (g) E, D.

WO 99/04265 PCT/US98/14679

- 31 -

For example, upon determining that a peptide derived from a cancer associated antigen polypeptide is presented by an MHC molecule and recognized by CTLs (e.g., as described in the Examples), one can make conservative amino acid substitutions to the amino acid sequence of the peptide, particularly at residues which are thought not to be direct contact points with the MHC molecule. For example, methods for identifying functional variants of HLA class II binding peptides are provided in a published PCT application of Strominger and Wucherpfennig (PCT/US96/03182). Peptides bearing one or more amino acid substitutions also can be tested for concordance with known HLA/MHC motifs prior to synthesis using, e.g. the computer program described by D'Amaro and Drijfhout (D'Amaro et al., *Human Immunol.* 43:13-18, 1995; Drijfhout et al., *Human Immunol.* 43:1-12, 1995). The substituted peptides can then be tested for binding to the MHC molecule and recognition by CTLs when bound to MHC. These variants can be tested for improved stability and are useful, *inter alia*, in vaccine compositions.

Conservative amino-acid substitutions in the amino acid sequence of cancer associated antigen polypeptides to produce functionally equivalent variants of cancer associated antigen polypeptides typically are made by alteration of a nucleic acid encoding a cancer associated antigen polypeptide. Such substitutions can be made by a variety of methods known to one of ordinary skill in the art. For example, amino acid substitutions may be made by PCR-directed mutation, sitedirected mutagenesis according to the method of Kunkel (Kunkel, Proc. Nat. Acad. Sci. U.S.A. 82: 488-492, 1985), or by chemical synthesis of a gene encoding a cancer associated antigen polypeptide. Where amino acid substitutions are made to a small unique fragment of a cancer associated antigen polypeptide, such as an antigenic epitope recognized by autologous or allogeneic sera or cytolytic T lymphocytes, the substitutions can be made by directly synthesizing the peptide. The activity of functionally equivalent fragments of cancer associated antigen polypeptides can be tested by cloning the gene encoding the altered cancer associated antigen polypeptide into a bacterial or mammalian expression vector, introducing the vector into an appropriate host cell, expressing the altered cancer associated antigen polypeptide, and testing for a functional capability of the cancer associated antigen polypeptides as disclosed herein. Peptides which are chemically synthesized can be tested directly for function, e.g., for binding to antisera recognizing associated antigens.

The invention as described herein has a number of uses, some of which are described elsewhere herein. First, the invention permits isolation of the cancer associated antigen protein

- 32 -

molecules. A variety of methodologies well-known to the skilled practitioner can be utilized to obtain isolated cancer associated antigen molecules. The polypeptide may be purified from cells which naturally produce the polypeptide by chromatographic means or immunological recognition. Alternatively, an expression vector may be introduced into cells to cause production of the polypeptide. In another method, mRNA transcripts may be microinjected or otherwise introduced into cells to cause production of the encoded polypeptide. Translation of mRNA in cell-free extracts such as the reticulocyte lysate system also may be used to produce polypeptide. Those skilled in the art also can readily follow known methods for isolating cancer associated antigen polypeptides. These include, but are not limited to, immunochromatography, HPLC, size-exclusion chromatography, ion-exchange chromatography and immune-affinity chromatography.

The isolation and identification of cancer associated antigen genes also makes it possible for the artisan to diagnose a disorder characterized by expression of cancer associated antigens. These methods involve determining expression of one or more cancer associated antigen nucleic acids, and/or encoded cancer associated antigen polypeptides and/or peptides derived therefrom. In the former situation, such determinations can be carried out via any standard nucleic acid determination assay, including the polymerase chain reaction, or assaying with labeled hybridization probes. In the latter situation, such determinations can be carried out by screening patient antisera for recognition of the polypeptide.

The invention also makes it possible isolate proteins which bind to cancer associated antigens as disclosed herein, including antibodies and cellular binding partners of the cancer associated antigens. Additional uses are described further herein.

The invention also provides, in certain embodiments, "dominant negative" polypeptides derived from cancer associated antigen polypeptides. A dominant negative polypeptide is an inactive variant of a protein, which, by interacting with the cellular machinery, displaces an active protein from its interaction with the cellular machinery or competes with the active protein, thereby reducing the effect of the active protein. For example, a dominant negative receptor which binds a ligand but does not transmit a signal in response to binding of the ligand can reduce the biological effect of expression of the ligand. Likewise, a dominant negative catalytically-inactive kinase which interacts normally with target proteins but does not phosphorylate the target proteins can reduce phosphorylation of the target proteins in response to a cellular signal. Similarly, a dominant

negative transcription factor which binds to a promoter site in the control region of a gene but does not increase gene transcription can reduce the effect of a normal transcription factor by occupying promoter binding sites without increasing transcription.

The end result of the expression of a dominant negative polypeptide in a cell is a reduction in function of active proteins. One of ordinary skill in the art can assess the potential for a dominant negative variant of a protein, and using standard mutagenesis techniques to create one or more dominant negative variant polypeptides. For example, given the teachings contained herein of cancer associated antigens, especially those which are similar to known proteins which have known activities, one of ordinary skill in the art can modify the sequence of the cancer associated antigens by site-specific mutagenesis, scanning mutagenesis, partial gene deletion or truncation, and the like. See, e.g., U.S. Patent No. 5,580,723 and Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Second Edition, Cold Spring Harbor Laboratory Press, 1989. The skilled artisan then can test the population of mutagenized polypeptides for diminution in a selected and/or for retention of such an activity. Other similar methods for creating and testing dominant negative variants of a protein will be apparent to one of ordinary skill in the art.

The invention also involves agents such as polypeptides which bind to cancer associated antigen polypeptides. Such binding agents can be used, for example, in screening assays to detect the presence or absence of cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners and in purification protocols to isolated cancer associated antigen polypeptides and complexes of cancer associated antigen polypeptides and their binding partners. Such agents also can be used to inhibit the native activity of the cancer associated antigen polypeptides, for example, by binding to such polypeptides.

The invention, therefore, embraces peptide binding agents which, for example, can be antibodies or fragments of antibodies having the ability to selectively bind to cancer associated antigen polypeptides. Antibodies include polyclonal and monoclonal antibodies, prepared according to conventional methodology.

Significantly, as is well-known in the art, only a small portion of an antibody molecule, the paratope, is involved in the binding of the antibody to its epitope (see, in general, Clark, W.R. (1986) The Experimental Foundations of Modern Immunology Wiley & Sons, Inc., New York; Roitt, I. (1991) Essential Immunology, 7th Ed., Blackwell Scientific Publications, Oxford). The

WO 99/04265 PCT/US98/14679

- 34 -

pFc' and Fc regions, for example, are effectors of the complement cascade but are not involved in antigen binding. An antibody from which the pFc' region has been enzymatically cleaved, or which has been produced without the pFc' region, designated an F(ab'), fragment, retains both of the antigen binding sites of an intact antibody. Similarly, an antibody from which the Fc region has been enzymatically cleaved, or which has been produced without the Fc region, designated an Fab fragment, retains one of the antigen binding sites of an intact antibody molecule. Proceeding further, Fab fragments consist of a covalently bound antibody light chain and a portion of the antibody heavy chain denoted Fd. The Fd fragments are the major determinant of antibody specificity (a single Fd fragment may be associated with up to ten different light chains without altering antibody specificity) and Fd fragments retain epitope-binding ability in isolation.

Within the antigen-binding portion of an antibody, as is well-known in the art, there are complementarity determining regions (CDRs), which directly interact with the epitope of the antigen, and framework regions (FRs), which maintain the tertiary structure of the paratope (see, in general, Clark, 1986; Roitt, 1991). In both the heavy chain Fd fragment and the light chain of IgG immunoglobulins, there are four framework regions (FR1 through FR4) separated respectively by three complementarity determining regions (CDR1 through CDR3). The CDRs, and in particular the CDR3 regions, and more particularly the heavy chain CDR3, are largely responsible for antibody specificity.

It is now well-established in the art that the non-CDR regions of a mammalian antibody may be replaced with similar regions of conspecific or heterospecific antibodies while retaining the epitopic specificity of the original antibody. This is most clearly manifested in the development and use of "humanized" antibodies in which non-human CDRs are covalently joined to human FR and/or Fc/pFc' regions to produce a functional antibody. Thus, for example, PCT International Publication Number WO 92/04381 teaches the production and use of humanized murine RSV antibodies in which at least a portion of the murine FR regions have been replaced by FR regions of human origin. Such antibodies, including fragments of intact antibodies with antigen-binding ability, are often referred to as "chimeric" antibodies.

Thus, as will be apparent to one of ordinary skill in the art, the present invention also provides for F(ab)₂, Fab, Fv and Fd fragments; chimeric antibodies in which the Fc and/or FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous

human or non-human sequences; chimeric F(ab')₂ fragment antibodies in which the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human sequences; chimeric Fab fragment antibodies in which the FR and/or CDR1 and/or CDR2 and/or light chain CDR3 regions have been replaced by homologous human or non-human sequences; and chimeric Fd fragment antibodies in which the FR and/or CDR1 and/or CDR2 regions have been replaced by homologous human or non-human sequences. The present invention also includes so-called single chain antibodies.

Thus, the invention involves polypeptides of numerous size and type that bind specifically to cancer associated antigen polypeptides, and complexes of both cancer associated antigen polypeptides and their binding partners. These polypeptides may be derived also from sources other than antibody technology. For example, such polypeptide binding agents can be provided by degenerate peptide libraries which can be readily prepared in solution, in immobilized form or as phage display libraries. Combinatorial libraries also can be synthesized of peptides containing one or more amino acids. Libraries further can be synthesized of peptoids and non-peptide synthetic moieties.

Phage display can be particularly effective in identifying binding peptides useful according to the invention. Briefly, one prepares a phage library (using e.g. m13, fd, or lambda phage), displaying inserts from 4 to about 80 amino acid residues using conventional procedures. The inserts may represent, for example, a completely degenerate or biased array. One then can select phage-bearing inserts which bind to the cancer associated antigen polypeptide. This process can be repeated through several cycles of reselection of phage that bind to the cancer associated antigen polypeptide. Repeated rounds lead to enrichment of phage bearing particular sequences. DNA sequence analysis can be conducted to identify the sequences of the expressed polypeptides. The minimal linear portion of the sequence that binds to the cancer associated antigen polypeptide can be determined. One can repeat the procedure using a biased library containing inserts containing part or all of the minimal linear portion plus one or more additional degenerate residues upstream or downstream thereof. Yeast two-hybrid screening methods also may be used to identify polypeptides that bind to the cancer associated antigen polypeptides. Thus, the cancer associated antigen polypeptides of the invention, or a fragment thereof, can be used to screen peptide libraries, including phage display libraries, to identify and select peptide binding partners of the cancer

associated antigen polypeptides of the invention. Such molecules can be used, as described, for screening assays, for purification protocols, for interfering directly with the functioning of cancer associated antigen and for other purposes that will be apparent to those of ordinary skill in the art.

As detailed herein, the foregoing antibodies and other binding molecules may be used for 5 example to identify tissues expressing protein or to purify protein. Antibodies also may be coupled to specific diagnostic labeling agents for imaging of cells and tissues that express cancer associated antigens or to therapeutically useful agents according to standard coupling procedures. Diagnostic agents include, but are not limited to, barium sulfate, iocetamic acid, iopanoic acid, ipodate calcium, diatrizoate sodium, diatrizoate meglumine, metrizamide, tyropanoate sodium and radiodiagnostics including positron emitters such as fluorine-18 and carbon-11, gamma emitters such as iodine-123. technitium-99m, iodine-131 and indium-111, nuclides for nuclear magnetic resonance such as fluorine and gadolinium. Other diagnostic agents useful in the invention will be apparent to one of ordinary skill in the art. As used herein, "therapeutically useful agents" include any therapeutic molecule which desirably is targeted selectively to a cell expressing one of the cancer antigens disclosed herein, including antineoplastic agents, radioiodinated compounds, toxins, other cytostatic or cytolytic drugs, and so forth. Antineoplastic therapeutics are well known and include: aminoglutethimide, azathioprine, bleomycin sulfate, busulfan, carmustine, chlorambucil, cisplatin, cyclophosphamide, cyclosporine, cytarabidine, dacarbazine, dactinomycin, daunorubicin, doxorubicin, taxol, etoposide, fluorouracil, interferon-α, lomustine, mercaptopurine, methotrexate, mitotane, procarbazine HCl, thioguanine, vinblastine sulfate and vincristine sulfate. Additional antineoplastic agents include those disclosed in Chapter 52, Antineoplastic Agents (Paul Calabresi and Bruce A. Chabner), and the introduction thereto, 1202-1263, of Goodman and Gilman's "The Pharmacological Basis of Therapeutics", Eighth Edition, 1990, McGraw-Hill, Inc. (Health Professions Division). Toxins can be proteins such as, for example, pokeweed anti-viral protein, 25 cholera toxin, pertussis toxin, ricin, gelonin, abrin, diphtheria exotoxin, or Pseudomonas exotoxin. Toxin moieties can also be high energy-emitting radionuclides such as cobalt-60.

In the foregoing methods, antibodies prepared according to the invention also preferably are specific for the cancer associated antigen/MHC complexes described herein.

When "disorder" is used herein, it refers to any pathological condition where the cancer associated antigens are expressed. An example of such a disorder is cancer, breast, colon, gastric, 30

WO 99/04265 PCT/US98/14679

- 37 -

renal, prostate and lung cancers as particular examples.

Samples of tissue and/or cells for use in the various methods described herein can be obtained through standard methods such as tissue biopsy, including punch biopsy and cell scraping, and collection of blood or other bodily fluids by aspiration or other methods.

In certain embodiments of the invention, an immunoreactive cell sample is removed from a subject. By "immunoreactive cell" is meant a cell which can mature into an immune cell (such as a B cell, a helper T cell, or a cytolytic T cell) upon appropriate stimulation. Thus immunoreactive cells include CD34* hematopoietic stem cells, immature T cells and immature B cells. When it is desired to produce cytolytic T cells which recognize a cancer associated antigen, the immunoreactive cell is contacted with a cell which expresses a cancer associated antigen under conditions favoring production, differentiation and/or selection of cytolytic T cells; the differentiation of the T cell precursor into a cytolytic T cell upon exposure to antigen is similar to clonal selection of the immune system.

Some therapeutic approaches based upon the disclosure are premised on a response by a subject's immune system, leading to lysis of antigen presenting cells, such as breast cancer cells which present one or more cancer associated antigens. One such approach is the administration of autologous CTLs specific to a cancer associated antigen/MHC complex to a subject with abnormal cells of the phenotype at issue. It is within the ability of one of ordinary skill in the art to develop such CTLs in vitro. An example of a method for T cell differentiation is presented in International Application number PCT/US96/05607. Generally, a sample of cells taken from a subject, such as blood cells, are contacted with a cell presenting the complex and capable of provoking CTLs to proliferate. The target cell can be a transfectant, such as a COS cell of the type described herein. These transfectants present the desired complex of their surface and, when combined with a CTL of interest, stimulate its proliferation. COS cells, such as those used herein are widely available, as are other suitable host cells. Specific production of a CTL clone is described herein, and is well known in the art. The clonally expanded autologous CTLs then are administered to the subject.

Another method for selecting antigen-specific CTL clones has recently been described (Altman et al., Science 274:94-96, 1996; Dunbar et al., Curr. Biol. 8:413-416, 1998), in which fluorogenic tetramers of MHC class I molecule/peptide complexes are used to detect specific CTL clones. Briefly, soluble MHC class I molecules are folded in vitro in the presence of β_7 -

- 38 -

microglobulin and a peptide antigen which binds the class I molecule. After purification, the MHC/peptide complex is purified and labeled with biotin. Tetramers are formed by mixing the biotinylated peptide-MHC complex with labeled avidin (e.g., phycoerythrin) at a molar ratio or 4:1. Tetramers are then contacted with a source of CTLs such as peripheral blood or lymph node. The tetramers bind CTLs which recognize the peptide antigen/MHC class I complex. Cells bound by the tetramers can be sorted by fluorescence activated cell sorting to isolate the reactive CTLs. The isolated CTLs then can be expanded in vitro for use as described herein.

To detail a therapeutic methodology, referred to as adoptive transfer (Greenberg, *J. Immunol.* 136(5): 1917, 1986; Riddel et al., *Science* 257: 238, 1992; Lynch et al, *Eur. J. Immunol.* 21: 1403-1410,1991; Kast et al., *Cell* 59: 603-614, 1989), cells presenting the desired complex are combined with CTLs leading to proliferation of the CTLs specific thereto. The proliferated CTLs are then administered to a subject with a cellular abnormality which is characterized by certain of the abnormal cells presenting the particular complex. The CTLs then lyse the abnormal cells, thereby achieving the desired therapeutic goal.

The foregoing therapy assumes that at least some of the subject's abnormal cells present the relevant HLA cancer associated antigen complex. This can be determined very easily, as the art is very familiar with methods for identifying cells which present a particular HLA molecule, as well as how to identify cells expressing DNA of the pertinent sequences, in this case a cancer associated antigen sequence. Once cells presenting the relevant complex are identified via the foregoing screening methodology, they can be combined with a sample from a patient, where the sample contains CTLs. If the complex presenting cells are lysed by the mixed CTL sample, then it can be assumed that a cancer associated antigen is being presented, and the subject is an appropriate candidate for the therapeutic approaches set forth supra.

Adoptive transfer is not the only form of therapy that is available in accordance with the invention. CTLs can also be provoked in vivo, using a number of approaches. One approach is the use of non-proliferative cells expressing the complex. The cells used in this approach may be those that normally express the complex, such as irradiated tumor cells or cells transfected with one or both of the genes necessary for presentation of the complex (i.e. the antigenic peptide and the presenting HLA molecule). Chen et al. (Proc. Natl. Acad. Sci. USA 88: 110-114,1991) exemplifies this approach, showing the use of transfected cells expressing HPVE7 peptides in a therapeutic

- 39 -

regime. Various cell types may be used. Similarly, vectors carrying one or both of the genes of interest may be used. Viral or bacterial vectors are especially preferred. For example, nucleic acids which encode a breast cancer associated antigen polypeptide or peptide may be operably linked to promoter and enhancer sequences which direct expression of the cancer associated antigen polypeptide or peptide in certain tissues or cell types. The nucleic acid may be incorporated into an expression vector. Expression vectors may be unmodified extrachromosomal nucleic acids, plasmids or viral genomes constructed or modified to enable insertion of exogenous nucleic acids, such as those encoding cancer associated antigen, as described elsewhere herein. Nucleic acids encoding a cancer associated antigen also may be inserted into a retroviral genome, thereby facilitating integration of the nucleic acid into the genome of the target tissue or cell type. In these systems, the gene of interest is carried by a microorganism, e.g., a Vaccinia virus, retrovirus or adenovirus, and the materials de facto "infect" host cells. The cells which result present the complex of interest, and are recognized by autologous CTLs, which then proliferate.

A similar effect can be achieved by combining the cancer associated antigen or a stimulatory fragment thereof with an adjuvant to facilitate incorporation into antigen presenting cells in vivo. The breast cancer associated antigen polypeptide is processed to yield the peptide partner of the HLA molecule while a cancer associated antigen peptide may be presented without the need for further processing. Generally, subjects can receive an intradermal injection of an effective amount of the cancer associated antigen. Initial doses can be followed by booster doses, following immunization protocols standard in the art. Preferred cancer associated antigens include those found to react with allogeneic cancer antisera, such as the nucleic acids (and encoded polypeptides and peptides) of SEQ ID NO:31,33 and 34 and others, for example, shown in the examples below.

The invention involves the use of various materials disclosed herein to "immunize" subjects or as "vaccines". As used herein, "immunization" or "vaccination" means increasing or activating an immune response against an antigen. It does not require elimination or eradication of a condition but rather contemplates the clinically favorable enhancement of an immune response toward an antigen. Generally accepted animal models can be used for testing of immunization against breast cancer using a cancer associated antigen nucleic acid. For example, cancer cells can be introduced into a mouse to create a tumor, and one or more cancer associated antigen nucleic acids can be delivered by the methods described herein. The effect on the cancer cells (e.g., reduction of tumor

- 40 -

size) can be assessed as a measure of the effectiveness of the cancer associated antigen nucleic acid immunization. Of course, testing of the foregoing animal model using more conventional methods for immunization include the administration of one or more cancer associated antigen polypeptides or peptides derived therefrom, optionally combined with one or more adjuvants and/or cytokines to boost the immune response. Methods for immunization, including formulation of a vaccine composition and selection of doses, route of administration and the schedule of administration (e.g. primary and one or more booster doses), are well known in the art. The tests also can be performed in humans, where the end point is to test for the presence of enhanced levels of circulating CTLs against cells bearing the antigen, to test for levels of circulating antibodies against the antigen, to test for the presence of cells expressing the antigen and so forth.

As part of the immunization compositions, one or more cancer associated antigens or stimulatory fragments thereof are administered with one or more adjuvants to induce an immune response or to increase an immune response. An adjuvant is a substance incorporated into or administered with antigen which potentiates the immune response. Adjuvants may enhance the immunological response by providing a reservoir of antigen (extracellularly or within macrophages), activating macrophages and stimulating specific sets of lymphocytes. Adjuvants of many kinds are well known in the art. Specific examples of adjuvants include monophosphoryl lipid A (MPL, SmithKline Beecham), a congener obtained after purification and acid hydrolysis of Salmonella minnesota Re 595 lipopolysaccharide; saponins including QS21 (SmithKline Beecham), a pure OA-21 saponin purified from *Quillia saponaria* extract; DQS21, described in PCT application WO96/33739 (SmithKline Beecham): OS-7, OS-17, OS-18, and OS-L1 (So et al., Mol. Cells 7:178-186, 1997); incomplete Freund's adjuvant; complete Freund's adjuvant; montanide; and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol. Preferably, the peptides are administered mixed with a combination of DQS21/MPL. The ratio of DQS21 to MPL typically will be about 1:10 to 10:1, preferably about 1:5 to 5:1 and more preferably about 1:1. Typically for human administration, DQS21 and MPL will be present in a vaccine formulation in the range of about 1 µg to about 100 µg. Other adjuvants are known in the art and can be used in the invention (see, e.g. Goding, Monoclonal Antibodies: Principles and Practice, 2nd Ed., 1986). Methods for the preparation of mixtures or emulsions of peptide and adjuvant are well known to those of skill in the art of vaccination.

10

WO 99/04265 PCT/US98/14679

- 41 -

Other agents which stimulate the immune response of the subject can also be administered to the subject. For example, other cytokines are also useful in vaccination protocols as a result of their lymphocyte regulatory properties. Many other cytokines useful for such purposes will be known to one of ordinary skill in the art, including interleukin-12 (IL-12) which has been shown to enhance the protective effects of vaccines (see, e.g., Science 268: 1432-1434, 1995), GM-CSF and IL-18. Thus cytokines can be administered in conjunction with antigens and adjuvants to increase the immune response to the antigens.

There are a number of immune response potentiating compounds that can be used in vaccination protocols. These include costimulatory molecules provided in either protein or nucleic acid form. Such costimulatory molecules include the B7-1 and B7-2 (CD80 and CD86 respectively) molecules which are expressed on dendritic cells (DC) and interact with the CD28 molecule expressed on the T cell. This interaction provides costimulation (signal 2) to an antigen/MHC/TCR stimulated (signal 1) T cell, increasing T cell proliferation and effector function. B7 also interacts with CTLA4 (CD152) on T cells and studies involving CTLA4 and B7 ligands indicate that the B7-CTLA4 interaction can enhance antitumor immunity and CTL proliferation, Zheng P., et al. PNAS 95 (11) 6284-6289 (1998).

B7 typically is not expressed on tumor cells so they are not efficient antigen presenting cells (APCs) for T cells. Induction of B7 expression would enable the tumor cells to stimulate more efficiently CTL proliferation and effector function. A combination of B7/IL-6/IL-12 costimulation has been shown to induce IFN-gamma and a Th1 cytokine profile in the T cell population leading to further enhanced T cell activity, Gajewski et al., *J. I mmunol*, 154:5637-5648 (1995). Tumor cell transfection with B7 has ben discussed in relation to *in vitro* CTL expansion for adoptive transfer immunotherapy by Wang et al., J Immunol, 19:1-8 (1986). Other delivery mechanisms for the B7 molecule would include nucleic acid (naked DNA) immunization Kim J., et al. *Nat Biotechnol.*, 15:7:641-646 (1997) and recombinant viruses such as adeno and pox (Wendtner et al., *Gene Ther*, 4:7:726-735 (1997)). These systems are all amenable to the construction and use of expression cassettes for the coexpression of B7 with other molecules of choice such as the antigens or fragment(s) of antigens discussed herein (including polytopes) or cytokines. These delivery systems can be used for induction of the appropriate molecules *in vitro* and for *in vivo* vaccination situations. The use of anti-CD28 antibodies to directly stimulate T cells *in vitro* and *in vivo* could also be

considered.

Lymphocyte function associated antigen-3 (LFA-3) is expressed on APCs and some tumor cells and interacts with CD2 expressed on T cells. This interaction induces T cell IL-2 and IFN-gamma production and can thus complement but not substitute, the B7/CD28 costimulatory interaction, Parra et al., *J. Immunol.*, 158:637-642 (1997), Fenton et al., *J. Immunother*, 21:2:95-108 (1989).

Lymphocyte function associated antigen-1 (LFA-1) is expressed on leukocytes and interacts with ICAM-1 expressed on APCs and some tumor cells. This interaction induces T cell IL-2 and IFN-gamma production and can thus complement but not substitute, the B7/CD28 costimulatory interaction, Fenton et al., J. Immunothera, 21:2:95-108 (1998). LFA-1 is thus a further example of a costimulatory molecule that could be provided in a vaccination protocol in the various ways discussed above for B7.

Complete CTL activation and effector function requires Th cell help through the interaction between the Th cell CD40L (CD40 ligand) molecule and the CD40 molecule expressed by DCS, Ridge et al., Nature, 393:474 (1998), Bennett et al., Nature, 393:478 (1998), Schoenberger et al., Nature, 393:480 (1998). This mechanism of this costimulatory signal is likely to involve upregulation of B7 and associated IL-6/IL-12 production by the DC (APC). The CD40-CD40L interaction thus complements the signal 1 (antigen/MHC-TCR) and signal 2 (B7-CD28) interactions.

The use of anti-CD40 antibodies to stimulate DC cells directly, would be expected to enhance a response to tumor antigens which are normally encountered outside of a inflammatory context or are presented by non-professional APCs (tumor cells). In these situations Th help and B7 costimulation signals are not provided. This mechanism might be used in the context of antigen pulsed DC based therapies or in situations where Th epitopes have not been defined within known TRA precursors.

A cancer associated antigen polypeptide, or a fragment thereof, also can be used to isolate their native binding partners. Isolation of such binding partners may be performed according to well-known methods. For example, isolated cancer associated antigen polypeptides can be attached to a substrate (e.g., chromatographic media, such as polystyrene beads, or a filter), and then a solution suspected of containing the binding partner may be applied to the substrate. If a binding partner which can interact with cancer associated antigen polypeptides is present in the solution.

- 43 -

then it will bind to the substrate-bound cancer associated antigen polypeptide. The binding partner then may be isolated.

It will also be recognized that the invention embraces the use of the cancer associated antigen cDNA sequences in expression vectors, as well as to transfect host cells and cell lines, be these prokaryotic (e.g., *E. coli*), or eukaryotic (e.g., dendritic cells, B cells, CHO cells, COS cells, yeast expression systems and recombinant baculovirus expression in insect cells). Especially useful are mammalian cells such as human, mouse, hamster, pig, goat, primate, etc. They may be of a wide variety of tissue types, and include primary cells and cell lines. Specific examples include keratinocytes, peripheral blood leukocytes, bone marrow stem cells and embryonic stem cells. The expression vectors require that the pertinent sequence, i.e., those nucleic acids described *supra*, be operably linked to a promoter.

The invention also contemplates delivery of nucleic acids, polypeptides or peptides for vaccination. Delivery of polypeptides and peptides can be accomplished according to standard vaccination protocols which are well known in the art. In another embodiment, the delivery of nucleic acid is accomplished by ex vivo methods, i.e. by removing a cell from a subject, genetically engineering the cell to include a breast cancer associated antigen, and reintroducing the engineered cell into the subject. One example of such a procedure is outlined in U.S. Patent 5,399,346 and in exhibits submitted in the file history of that patent, all of which are publicly available documents. In general, it involves introduction in vitro of a functional copy of a gene into a cell(s) of a subject, and returning the genetically engineered cell(s) to the subject. The functional copy of the gene is under operable control of regulatory elements which permit expression of the gene in the genetically engineered cell(s). Numerous transfection and transduction techniques as well as appropriate expression vectors are well known to those of ordinary skill in the art, some of which are described in PCT application WO95/00654. In vivo nucleic acid delivery using vectors such as viruses and targeted liposomes also is contemplated according to the invention.

In preferred embodiments, a virus vector for delivering a nucleic acid encoding a cancer associated antigen is selected from the group consisting of adenoviruses, adeno-associated viruses, poxviruses including vaccinia viruses and attenuated poxviruses, Semliki Forest virus, Venezuelan equine encephalitis virus, retroviruses, Sindbis virus, and Ty virus-like particle. Examples of viruses and virus-like particles which have been used to deliver exogenous nucleic acids include:

WO 99/04265 PCT/US98/14679

- 44 -

replication-defective adenoviruses (e.g., Xiang et al., Virology 219:220-227, 1996; Eloit et al., J. Virol 7:5375-5381, 1997; Chengalvala et al., Vaccine 15:335-339, 1997), a modified retrovirus (Townsend et al., J. Virol. 71:3365-3374, 1997), a nonreplicating retrovirus (Irwin et al., J. Virol. 68:5036-5044, 1994), a replication defective Semliki Forest virus (Zhao et al., Proc. Natl. Acad. Sci. USA 92:3009-3013, 1995), canarypox virus and highly attenuated vaccinia virus derivative (Paoletti, Proc. Natl. Acad. Sci. USA 93:11349-11353, 1996), non-replicative vaccinia virus (Moss, Proc. Natl. Acad. Sci. USA 93:11341-11348, 1996), replicative vaccinia virus (Moss, Dev. Biol. Stand. 82:55-63, 1994), Venzuelan equine encephalitis virus (Davis et al., J. Virol. 70:3781-3787, 1996), Sindbis virus (Pugachev et al., Virology 212:587-594, 1995), and Ty virus-like particle (Allsopp et al., Eur J. Immunol 26:1951-1959, 1996). In preferred embodiments, the virus vector is an adenovirus.

Another preferred virus for certain applications is the adeno-associated virus, a doublestranded DNA virus. The adeno-associated virus is capable of infecting a wide range of cell types
and species and can be engineered to be replication-deficient. It further has advantages, such as heat
and lipid solvent stability, high transduction frequencies in cells of diverse lineages, including
hematopoietic cells, and lack of superinfection inhibition thus allowing multiple series of
transductions. The adeno-associated virus can integrate into human cellular DNA in a site-specific
manner, thereby minimizing the possibility of insertional mutagenesis and variability of inserted
gene expression. In addition, wild-type adeno-associated virus infections have been followed in
tissue culture for greater than 100 passages in the absence of selective pressure, implying that the
adeno-associated virus genomic integration is a relatively stable event. The adeno-associated virus
can also function in an extrachromosomal fashion.

In general, other preferred viral vectors are based on non-cytopathic eukaryotic viruses in which non-essential genes have been replaced with the gene of interest. Non-cytopathic viruses include retroviruses, the life cycle of which involves reverse transcription of genomic viral RNA into DNA with subsequent proviral integration into host cellular DNA. Adenoviruses and retroviruses have been approved for human gene therapy trials. In general, the retroviruses are replication-deficient (i.e., capable of directing synthesis of the desired proteins, but incapable of manufacturing an infectious particle). Such genetically altered retroviral expression vectors have general utility for the high-efficiency transduction of genes in vivo. Standard protocols for

DOARSON GEDSON

25

30

10

producing replication-deficient retroviruses (including the steps of incorporation of exogenous genetic material into a plasmid, transfection of a packaging cell lined with plasmid, production of recombinant retroviruses by the packaging cell line, collection of viral particles from tissue culture media, and infection of the target cells with viral particles) are provided in Kriegler, M., "Gene Transfer and Expression, A Laboratory Manual," W.H. Freeman C.O., New York (1990) and Murry, E.J. Ed. "Methods in Molecular Biology," vol. 7, Humana Press, Inc., Cliffton, New Jersey (1991).

Preferably the foregoing nucleic acid delivery vectors: (1) contain exogenous genetic material that can be transcribed and translated in a mammalian cell and that can induce an immune response in a host, and (2) contain on a surface a ligand that selectively binds to a receptor on the surface of a target cell, such as a mammalian cell, and thereby gains entry to the target cell.

Various techniques may be employed for introducing nucleic acids of the invention into cells, depending on whether the nucleic acids are introduced in vitro or in vivo in a host. Such techniques include transfection of nucleic acid-CaPO4 precipitates, transfection of nucleic acids associated with DEAE, transfection or infection with the foregoing viruses including the nucleic acid of interest, liposome mediated transfection, and the like. For certain uses, it is preferred to target the nucleic acid to particular cells. In such instances, a vehicle used for delivering a nucleic acid of the invention into a cell (e.g., a retrovirus, or other virus; a liposome) can have a targeting molecule attached thereto. For example, a molecule such as an antibody specific for a surface membrane protein on the target cell or a ligand for a receptor on the target cell can be bound to or incorporated within the nucleic acid delivery vehicle. Preferred antibodies include antibodies which selectively bind a cancer associated antigen, alone or as a complex with a MHC molecule. Especially preferred are monoclonal antibodies. Where liposomes are employed to deliver the nucleic acids of the invention, proteins which bind to a surface membrane protein associated with endocytosis may be incorporated into the liposome formulation for targeting and/or to facilitate uptake. Such proteins include capsid proteins or fragments thereof tropic for a particular cell type, antibodies for proteins which undergo internalization in cycling, proteins that target intracellular localization and enhance intracellular half life, and the like. Polymeric delivery systems also have been used successfully to deliver nucleic acids into cells, as is known by those skilled in the art. Such systems even permit oral delivery of nucleic acids.

When administered, the therapeutic compositions of the present invention can be

WO 99/04265 PCT/US98/14679

- 46 -

administered in pharmaceutically acceptable preparations. Such preparations may routinely contain pharmaceutically acceptable concentrations of salt, buffering agents, preservatives, compatible carriers, supplementary immune potentiating agents such as adjuvants and cytokines and optionally other therapeutic agents.

The therapeutics of the invention can be administered by any conventional route, including injection or by gradual infusion over time. The administration may, for example, be oral, intravenous, intraperitoneal, intramuscular, intracavity, subcutaneous, or transdermal. When antibodies are used therapeutically, a preferred route of administration is by pulmonary aerosol. Techniques for preparing aerosol delivery systems containing antibodies are well known to those of skill in the art. Generally, such systems should utilize components which will not significantly impair the biological properties of the antibodies, such as the paratope binding capacity (see, for example, Sciarra and Cutie, "Aerosols," in Remington's Pharmaceutical Sciences, 18th edition, 1990, pp 1694-1712; incorporated by reference). Those of skill in the art can readily determine the various parameters and conditions for producing antibody aerosols without resort to undue experimentation. When using antisense preparations of the invention, slow intravenous administration is preferred.

The compositions of the invention are administered in effective amounts. An "effective amount" is that amount of a cancer associated antigen composition that alone, or together with further doses, produces the desired response, e.g. increases an immune response to the cancer associated antigen. In the case of treating a particular disease or condition characterized by expression of one or more cancer associated antigens, such as cancer, the desired response is inhibiting the progression of the disease. This may involve only slowing the progression of the disease temporarily, although more preferably, it involves halting the progression of the disease permanently. This can be monitored by routine methods or can be monitored according to diagnostic methods of the invention discussed herein. The desired response to treatment of the disease or condition also can be delaying the onset or even preventing the onset of the disease or condition.

Such amounts will depend, of course, on the particular condition being treated, the severity of the condition, the individual patient parameters including age, physical condition, size and weight, the duration of the treatment, the nature of concurrent therapy (if any), the specific route of

WO 99/04265 PCT/US98/14679

- 47 -

administration and like factors within the knowledge and expertise of the health practioner. These factors are well known to those of ordinary skill in the art and can be addressed with no more than routine experimentation. It is generally preferred that a maximum dose of the individual components or combinations thereof be used, that is, the highest safe dose according to sound medical judgment. It will be understood by those of ordinary skill in the art, however, that a patient may insist upon a lower dose or tolerable dose for medical reasons, psychological reasons or for virtually any other reasons.

The pharmaceutical compositions used in the foregoing methods preferably are sterile and contain an effective amount of breast cancer associated antigen or nucleic acid encoding cancer associated antigen for producing the desired response in a unit of weight or volume suitable for administration to a patient. The response can, for example, be measured by determining the immune response following administration of the cancer associated antigen composition via a reporter system as described herein, by measuring downstream effects such as gene expression, or by measuring the physiological effects of the breast cancer associated antigen composition, such as regression of a tumor or decrease of disease symptoms. Other assays will be known to one of ordinary skill in the art and can be employed for measuring the level of the response.

The doses of cancer associated antigen compositions (e.g., polypeptide, peptide, antibody, cell or nucleic acid) administered to a subject can be chosen in accordance with different parameters, in particular in accordance with the mode of administration used and the state of the subject. Other factors include the desired period of treatment. In the event that a response in a subject is insufficient at the initial doses applied, higher doses (or effectively higher doses by a different, more localized delivery route) may be employed to the extent that patient tolerance permits.

In general, for treatments for eliciting or increasing an immune response, doses of cancer associated antigen are formulated and administered in doses between 1 ng and 1 mg, and preferably between 10 ng and 100 μ g, according to any standard procedure in the art. Where nucleic acids encoding cancer associated antigen of variants thereof are employed, doses of between 1 ng and 0.1 mg generally will be formulated and administered according to standard procedures. Other protocols for the administration of cancer associated antigen compositions will be known to one of ordinary skill in the art, in which the dose amount, schedule of injections, sites of injections, mode of administration (e.g., intra-tumoral) and the like vary from the foregoing. Administration of cancer

WO 99/04265 PCT/US98/14679

- 48 -

associated antigen compositions to mammals other than humans, e.g. for testing purposes or veterinary therapeutic purposes, is carried out under substantially the same conditions as described above.

As part of the immunization compositions, the peptide antigens are administered with one or more adjuvants to induce an immune response or to increase an immune response. An adjuvant is a substance incorporated into or administered with antigen which potentiates the immune response. Adjuvants may enhance the immunological response by providing a reservoir of antigen (extracellularly or within macrophages), activating macrophages and stimulating specific sets of lymphocytes. Adjuvants of many kinds are well known in the art. Specific examples of adjuvants include monophosphoryl lipid A (MPL, SmithKline Beecham), a congener obtained after purification and acid hydrolysis of Salmonella minnesota Re 595 lipopolysaccharide; saponins including QS21 (SmithKline Beecham), a pure QA-21 saponin purified from Quillia saponaria extract; DOS21, described in PCT application WO96/33739 (SmithKline Beecham); QS-7, QS-17, QS-18, and QS-L1 (So et al., Mol. Cells 7:178-186, 1997); incomplete Freund's adjuvant; complete Freund's adjuvant; montanide; and various water-in-oil emulsions prepared from biodegradable oils such as squalene and/or tocopherol. Other adjuvants are known in the art and can be used in the invention (see, e.g. Goding, Monoclonal Antibodies: Principles and Practice, 2nd Ed., 1986). Methods for the preparation of mixtures or emulsions of peptide and adjuvant are well known to those of skill in the art of vaccination.

Where cancer associated antigen peptides are used for vaccination, modes of administration which effectively deliver the cancer associated antigen and adjuvant, such that an immune response to the antigen is increased, can be used. For administration of a cancer associated antigen peptide in adjuvant, preferred methods include intradermal, intravenous, intramuscular and subcutaneous administration. Although these are preferred embodiments, the invention is not limited by the particular modes of administration disclosed herein. Standard references in the art (e.g., Remington's Pharmaceutical Sciences, 18th edition, 1990) provide modes of administration and formulations for delivery of immunogens with adjuvant or in a non-adjuvant carrier.

When administered, the pharmaceutical preparations of the invention are applied in pharmaceutically-acceptable amounts and in pharmaceutically-acceptable compositions. The term "pharmaceutically acceptable" means a non-toxic material that does not interfere with the

30

effectiveness of the biological activity of the active ingredients. Such preparations may routinely contain salts, buffering agents, preservatives, compatible carriers, and optionally other therapeutic agents. When used in medicine, the salts should be pharmaceutically acceptable, but non-pharmaceutically acceptable salts may conveniently be used to prepare pharmaceutically-acceptable salts thereof and are not excluded from the scope of the invention. Such pharmacologically and pharmaceutically-acceptable salts include, but are not limited to, those prepared from the following acids: hydrochloric, hydrobromic, sulfuric, nitric, phosphoric, maleic, acetic, salicylic, citric, formic, malonic succinic, and the like. Also, pharmaceutically-acceptable salts can be prepared as alkaline metal or alkaline earth salts, such as sodium, potassium or calcium salts.

A breast cancer associated antigen composition may be combined, if desired, with a pharmaceutically-acceptable carrier. The term "pharmaceutically-acceptable carrier" as used herein means one or more compatible solid or liquid fillers, diluents or encapsulating substances which are suitable for administration into a human. The term "carrier" denotes an organic or inorganic ingredient, natural or synthetic, with which the active ingredient is combined to facilitate the application. The components of the pharmaceutical compositions also are capable of being co-mingled with the molecules of the present invention, and with each other, in a manner such that there is no interaction which would substantially impair the desired pharmaceutical efficacy.

The pharmaceutical compositions may contain suitable buffering agents, including: acetic acid in a salt; citric acid in a salt; boric acid in a salt; and phosphoric acid in a salt.

The pharmaceutical compositions also may contain, optionally, suitable preservatives, such as: benzalkonium chloride: chlorobutanol: parabens and thimerosal.

The pharmaceutical compositions may conveniently be presented in unit dosage form and may be prepared by any of the methods well-known in the art of pharmacy. All methods include the step of bringing the active agent into association with a carrier which constitutes one or more accessory ingredients. In general, the compositions are prepared by uniformly and intimately bringing the active compound into association with a liquid carrier, a finely divided solid carrier, or both, and then, if necessary, shaping the product.

Compositions suitable for oral administration may be presented as discrete units, such as

capsules, tablets, lozenges, each containing a predetermined amount of the active compound. Other compositions include suspensions in aqueous liquids or non-aqueous liquids such as a syrup, elixir or an emulsion.

Compositions suitable for parenteral administration conveniently comprise a sterile

aqueous or non-aqueous preparation of breast cancer associated antigen polypeptides or nucleic acids, which is preferably isotonic with the blood of the recipient. This preparation may be formulated according to known methods using suitable dispersing or wetting agents and suspending agents. The sterile injectable preparation also may be a sterile injectable solution or suspension in a non-toxic parenterally-acceptable diluent or solvent, for example, as a solution in 1,3-butane diol. Among the acceptable vehicles and solvents that may be employed are water, Ringer's solution, and isotonic sodium chloride solution. In addition, sterile, fixed oils are conventionally employed as a solvent or suspending medium. For this purpose any bland fixed oil may be employed including synthetic mono-or di-glycerides. In addition, fatty acids such as oleic acid may be used in the preparation of injectables. Carrier formulation suitable for oral, subcutaneous, intravenous, intramuscular, etc. administrations can be found in Remington's Pharmaceutical Sciences. Mack Publishing Co., Easton, PA.

Examples

Example 1: Preparation of breast cancer cDNA expression libraries

Step 1: Purification of total RNA from tumors.

Total RNA was isolated from tumor samples using the guanidium thiocyanatephenol-chloroform extraction protocol described by Chomczynski and Sacci (*Anal. Biochem.* 162:156-159, 1987).

Step 2: Purification of mRNA.

A Dynabeads mRNA isolation kit (Dynal, Cat.No. 610.01) was used to isolate mRNA from the pool of total RNA isolated in step 1 above according to the manufacturer's instructions.

Step 3: cDNA synthesis.

cDNA synthesis was performed using a ZAP-cDNA synthesis Kit (Stratagene, La Jolla CA; Cat. No. 200400) according to the manufacturer's protocol. A specific linker-primer which contains a XbaI cloning site was designed and used in this protocol, to facilitate subcloning into TriplEx

10

vector. The sequence of the primer was:

Step 4: Ligation into the TriplEx vector arms.

The cDNAs generated in step 3 above were ligated into TriplEx vector arms (Clontech, Palo Alto, CA; Cat. No. 6162-1); the arms were predigested with EcoR I/Xba I.

Step 5: Packaging into phages with Gigapack III kit.

The ligation mix (TriplEx/cDNA) from step 4 was packed into phages using the Gigapack III Gold Cloning Kit (Stratagene, Cat. N.200450) according to the protocol supplied with the kit.

 ${\bf Step \, 6: \, Titering \, and \, amplification \, of \, generated \, libraries \, was \, performed \, accoding \, to \, the \, Stratagene \, protocols.}$

The foregoing protocol was used to prepare several libraries from tumor sample of different patients. Some libraries were prepared using the UNI-ZAP XR vector system (Stratagene) according to the manufacturer's protocol, and some using the TriplEx system as described above.

Table 2

UNI-ZAP Libraries					
Code for tumors	Titer of the library	Histopathological diagnosis			
HBR173	1.8 x 10 ⁶ pfu	Ductal Carcinoma, Grade III			
HBR184	3.5 x 10 ⁶ pfu	Invasive Ductal Carcinoma, Grade II			
TriplEx libraries					
Code for tumors	Titer of the library	Histopoathological diagnosis			
HBR173	2.3 x 10 ⁶ pfu	Ductal Carcinoma, Grade III			
HBR184	1.1 x 10 ⁶ pfu	Ivasive Ductal Carcinoma, Grade II			
HBR257	2.5 x 10 ⁶ pfu	Invasive Ductal Carcinoma, Grade II			
HBR297	4.0 x 10 ⁶ pfu	Ductal Carcinoma, Grade II			
HBR248	1.0 x 10 ⁶ pfu	Invasive Ductal Carcinoma with			
		Vascular Permeation, Grade III			

20

25

HBR271	2.5 x 10 ⁶ pfu	Medullary Carcimoma
HBR263	10.0 x 10 ⁶ pfu	Inv. Pleiomorphic Lobular Carcinoma,
		Grade II

All libraries were screened with the exception of HBR173 (no autologous serum). No serum-positive clones were found by screening HBR271 library.

Example 2: Immunoscreening

Sera was obtained from donors undergoing routine diagnostic and therapeutic procedures. It was stored at - 70°C prior to absorption. Sera, at a dilution of 1:10 in Tris buffered saline (TBS, pH 7.5), was sequentially passed through Sepharose 4B columns which had been coupled to lysates from E. coli Y1090 and bacteriophage infected E. coli BNN97 (5 Prime 3 Prime, Inc. Boulder, Co.). Final serum dilutions were prepared in 0.2% non-fat dried milk/TBS (NFDM) and stored at 4°C. Library screening was performed as described by Sahin et al. (Proc. Natl. Acad. Sci. USA 92:11810-11813, 1995) with following modifications. Recombinant phage at a concentration of 4 x 10³ per 15 cm plate were amplified for 6 hours and transferred to nitrocellulose membranes for an additional 15 hours at 37°C. Membranes were then blocked with 5% NFDM. As an alternative to generation of IgG subtracted libraries, membranes were pre-screened in a 1:2000 dilution of peroxidase conjugated, Fc fragment specific, goat anti-human IgG (Jackson Immunoresearch Laboratories Inc., West Grove, PA) for 1 hour at room temperature. Color was developed with 3.3' diaminobenzidine tetrahydrochloride and IgG encoding clones were scored. Membranes were then incubated in a 1:100 dilution of absorbed autologous sera for 15 hours at room temperature. Following serum exposure, filters were incubated in a 1:3000 dilution of alkaline phosphatase conjugated, Fc fragment specific, goat anti-human IgG (Jackson Immunoresearch Laboratories Inc.) for 1 hour at room temperature and processed for 4-nitro blue tetrazolium chloride/5-bromo-4-chloro- 3-indolyl-phosphate color development. Serum positive clones were subcloned and retested for serum reactivity as above except nitrocellulose transfer was decreased to 3 hours. For the determination of allogeneic serum reactivity, plates containing an equal number of serum positive clones and negative control plaques were similarly processed less the IgG prescreening steps. A minimum of 5 x 105 recombinants were screened per cDNA library, a number which approximates a point at which the likelihood of repeat isolations of previously identified clones outweigh the prospect of identifying new clones.

Example 3: DNA Sequencing

Phage cDNA clones were converted to pBKCMV phagemid forms by in vivo excision.

Plasmid DNA was purified on Qiaprep spin columns (Qiagen Inc. Chatsworth, CA) and subjected to EcoRI/XbaI restriction enzyme digestion. Clones representing different cDNA inserts were sequenced at Cornell University DNA services (Ithaca, NY) using an ABI Prism (Perkin Elmer) automated DNA sequencer. The sequences of the clones were compared with sequences in GenBank and HGI databases to detect homologous nucleic acid and/or protein sequences. The following table lists exemplary related sequences.

Table 3: Sequences Related to Breast Cancer Associated Antigen Clones

Clone	Nucleotide Homology	Clone	Nucleotide Homology	Clone	Nucleotide Homology
LONY-Br-1	L34543	LONY-Br-23	AA262134, U74628	LONY-Br-44	D15057
LONY-Br-2	S75417	LONY-Br-24	AA282633	LONY-Br-45	AB000815
LONY-Br-3	J05211	LONY-Br-25	M62324	LONY-Br-46	L04733
LONY-Br-4	X15187	LONY-Br-26	M99389	LONY-Br-47	X88791
LONY-Br-5	X62083	LONY-Br-27	X79389	LONY-Br-48	AF000430
LONY-Br-6	J04965	LONY-Br-28	D44466	LONY-Br-49	none
LONY-Br-7	D63784	LONY-Br-29	M33197	LONY-Br-50	AA226732
LONY-Br-8	U11292	LONY-Br-30	M17886	LONY-Br-51	AA046574
LONY-Br-9	HSB06D102	LONY-Br-31	L38941	LONY-Br-52	none
LONY-Br-10	none	LONY-Br-32	X17644	LONY-Br-53	AB002307
LONY-Br-11	none	LONY-Br-33	X75342	92	AA127328
LONY-Br-12	AA430998	LONY-Br-33	X75342	101	AA167314
LONY-Br-13	D83032	LONY-Br-34	U43368	102	AA508139
LONY-Br-14	AA034417	LONY-Br-35	X15882	107	none
LONY-Br-15	AA167070	LONY-Br-37	AA121558	109	AA220229

5

5

10

LONY-Br-16	none	LONY-Br-38	AA211771	110	W67775
LONY-Br-17	AA161103	LONY-Br-39	AA367417	111	AA280070
LONY-Br-19	R13835	LONY-Br-40	AA188052	112	AF004292
LONY-Br-20	HUMORF003	LONY-Br-41	THC83518	131	none
LONY-Br-21	S74572	LONY-Br-42	none	143	AA481578
LONY-Br-22	AA070233	LONY-Br-43	HU35246	162	AA481578

Example 4: Reverse transcriptase (RT) PCR and Rapid Amplification of cDNA Ends (RACE)

The mRNA expression pattern of selected cDNA clones was determined by RT-PCR using a panel of normal tissue RNA. This test panel consisted of lung, testis, small intestine, colon, breast, liver, and placenta, and was purchased from Clontech Laboratories Inc. (Palo Alto, CA). Colon tumor RNA was also included in this panel and was prepared as described above. As a control for genomic DNA contamination, all cDNA synthesis reactions were set up in duplicate with the additional sample lacking reverse transcriptase. Gene specific PCR primers were designed to amplify 5' fragments of 300-400 bp and were purchased commercially (Gibco BRL, Grand Island, NY). PCR reactions were undertaken at an annealing temperature of 68 °C using a Perkin Elmer thermal cycler. In certain cases, RT-PCR products were subcloned into the pCR2.1 plasmid vector (Invitrogen) and multiple clones were subjected to DNA sequencing as described. 5' and 3' RACE reactions were undertaken using gene specific and adapter primers in conjunction with Marathon Ready normal colon cDNA and KlenTaq polymerase (Clontech) as per manufacturers protocol. Products were then subcloned into the pCR2.1 plasmid vector (Invitrogen) and screened by PCR with internal primers for presence of the desired insert. Multiple RACE clones were subjected to DNA sequencing as described.

Example 5: Northern blot analysis

Northern blots containing the transfer yields of 2 μ g poly A* RNA from a panel of normal tissues were obtained commercially (Clontech). Random primed ³²P labeled probes consisting of 300-600 bp PCR products from 5 prime coding sequences of serum positive cDNA clones were hybridized for 1.5 hours in Expresshyb (Clontech) at 68°C and washed at high stringency (2 times,

5

10

30 min. each, 0.1X SSC/0.1% SDS at 68°C). Resultant blots were used to expose Biomax MS autoradiography film (Eastman Kodak Co., Rochester, NY).

Table 4: Breast Cancer Associated Antigen Clone mRNA sizes

Clone	Size (kb)	Clone	Size (kb)	Clone	Size (kb)
LONY-Br-1	1.8	LONY-Br-17	1.0	LONY-Br-33	2.6
LONY-Br-2	2.9	LONY-Br-19	1.5	LONY-Br-34	2.1
LONY-Br-3	4.8	LONY-Br-20	2.4	LONY-Br-35	1.9
LONY-Br-4	1.2	LONY-Br-21	2.4	LONY-Br-36	0.8
LONY-Br-5	0.9	LONY-Br-22	1.6	LONY-Br-37	1.0
LONY-Br-6	1.4	LONY-Br-23	1.3	LONY-Br-38	2.2
LONY-Br-7	1.3	LONY-Br-24	3.9	LONY-Br-39	1.9
LONY-Br-8	0.9	LONY-Br-25	1.9	LONY-Br-40	3.4
LONY-Br-9	6.0	LONY-Br-26	1.5	LONY-Br-41	3.9
LONY-Br-10	3.6	LONY-Br-27	1.2	LONY-Br-42	0.6
LONY-Br-11	4.6	LONY-Br-28	0.5	LONY-Br-43	1.4
LONY-Br-12	2.2	LONY-Br-29	0.6	LONY-Br-44	0.7
LONY-Br-13	1.2	LONY-Br-30	0.8	LONY-Br-45	3.0
LONY-Br-14	0.8	LONY-Br-31	0.4	LONY-Br-46	3.7
LONY-Br-15	0.9	LONY-Br-32	2.2	LONY-Br-47	0.5
LONY-Br-16	2.5	LONY-Br-33	2.6	LONY-Br-48	1.6

Example 6: Isolation of gastric and prostate clones

A stomach cancer cDNA library was established, using standard techniques, then the library was screened, using the SEREX methodology described supra, and set forth by Sahin et al., *Proc. Natl. Acad. Sci. USA* 92: 11810 (1995), and by Chen et al., *Proc. Natl. Acad. Sci. USA* 94: 1914 (1997), incorporated by reference in their entirety.

To be specific, total RNA was isolated by homogenizing tumor samples in 4M guanidium thiocyanate/0.5% sodium N-lauryl sarcosine/ and 25 mM EDTA followed by centrifugation in 5.7 M CsCl/25 mM sodium acetate/10 uM EDTA at 320,000 rpm. Total mRNA was removed by passing the sample over an oligo-dT cellulose column. The cDNA libraries were then constructed

- 56 -

by taking 5 ug of mRNA, using standard methodologies to reverse transcribe the material.

Libraries were prepared from four different stomach cancer patients, referred to as "SM",
"CK" and "SS" and "KM" respectively. A total of 2.5x106, 1.1x106, and 1.7x106 cDNA clones were
obtained from the "SM", "CK" and "SS" individuals. Additional libraries were prepared from
prostate cancer patient "OT".

The cDNA was used to construct a lambda phage library, and 500 phages were plated onto XL1-Blue MRF E. coli, and incubated for eight hours at 37°C. A nitrocellulose membrane was then placed on the plate, followed by overnight incubation. The membrane was then washed, four times, without TBS which contained 0.05% Tween, and was then immersed in TBS containing 5% non-fat dried milk. After one hour, the membrane was incubated with conjugates of peroxidase-goat anti human IgG specific for Fc portions of huma antibody (1:2000, diluted in TBS with 1% BSA. The incubation was carried out for one hour, at room temperature, and the membrane was then washed three times with TBS. Those clones which produced antibodies were visualized with 0.06%, 3,3'diamino benzidine tetrachloride, and 0.015% H₂O₂, in 50 mM Tris (pH 7.5). Any clones which produced immunoglobulin were marked, and then the membrane was washed, two further times, with TBS that contained 0.05% Tween, and then twice with "neat" TBS.

The membranes were then incubated in 1:100 diluted patient serum, overnight, at 4°C. The patient serum had been pretreated. Specifically, 5 ml samples were diluted to 10 ml with TBS containing 1% bovine serum albumin, and 0.02% Na₃N. The serum had been treated to remove antibodies to bacteriophage, by passing it through a 5 ml Sepharose column, to which a lysate of E. coli Y1090 had been attached, followed by passage over a second column which had E. coli lysate and lysate of E. coli infected with lambda bacteriophage. The screening was carried out five time. The samples were then diluted to 50 ml, and kept at -80°C, until used as described herein.

Following the overnight incubation with the membrane, the membrane was washed twice with TBS/0.05% Tween 20, and then once with TBS. A further incubation was carried out, using the protocols discussed supra, for the POD labelled antibodies.

The positive clones were then sequenced, using standard techniques. Following comparison of the sequences to information available in data banks, a total of 36 clones were resolved into known and unknown genes. In the table that follows, the "+" and "-" signs are essentially used to compare signals to each other. All were positive. Table 5, which follows, summarizes some of this

work isolation and sequencing of "SM" clones. Specifically, with reference to the first page of the table, previously identified human proteins and the nucleotide sequences, set forth in SEQ ID NOS:588-626 are known. The four molecules which follow in SEQ ID NOS:627-634 (gelsolin, zinc finger protein family, variant zinc finger motif protein goliath and homeodomain proteins), have not been identified in humans previously, although there are related molecules found in other species. Finally, with reference to Table 5, the last four moieties, i.e., prepro-α collagen, heterogeneous ribonucleoprotein D, nucleosome assembly protein 2, and NY-ESO-2/Ulsn NRP/V1 small nuclear ribonucleoprotein, are also known. Nucleotide sequences are set forth at SEQ ID NOS:635-642. The nucleic acid molecules having the nucleotide sequences set forth at SEQ ID NOS:643-670 represent molecules for which no related sequences were found. SEQ ID NO:671 combines the sequences of SEQ ID NOS:627-630, inclusive. SEQ ID NO:672 combines SEQ ID NOS:643-656, SEQ ID NO:673 combines SEQ ID NOS:657, 659 and 662, while SEQ ID NO:674 combines SEQ ID NOS: 658, 660, 661 and 663.

SEREX analysis of clones from libraries derived from patients "CK", "SS", "KM" (all gastric cancer) and patient "OT" (prostate cancer) was carried out as described above. The nucleotide sequences of clones derived from gastric cancer patients are presented as SEQ ID NOs:176-436. The nucleotide sequences of clones derived from prostate cancer patient "OT" are presented as SEQ ID Nos:437-543.

Example 7: Isolation and analysis of colon clones

Colon tumor samples were obtained as surgical samples, and were frozen at -80°C until ready for use.

Total RNA was then isolated from the samples, using the guanidium thiocyanate method of Chirgwin, et al., *Biochemistry* 18: 5294-5299 (1979), incorporated by reference. The total RNA thus obtained was then purified to isolate all poly A⁺ RNA, using commercially available products designed for this purpose.

The poly A⁺ RNA was then converted into cDNA, and ligated into λ ZAP, a commercially available expression vector, according to the manufacturer's suggested protocol.

Three cDNA libraries were constructed in this way, using colorectal carcinoma samples.

A fourth library, also from colorectal carcinoma, was prepared, albeit in a different way. The

30

WO 99/04265 PCT/US98/14679

- 58 -

fourth library was an IgG subtraction library, prepared by using a subtraction partner, generated by PCR amplification of a cDNA clone which encoded an IgG molecule. See, e.g., Ace et al, Endocrinology 134: 1305-1309 (1994), and incorporated by reference in its entirety. IgG subtraction is done to eliminate any false, positive signals resulting from interaction of cDNA clones which encode IgG, with the IgG then interacting with the anti-human IgG used in the SEREX assay, as described herein. PCR products were biotinylated, and hybridized with denatured second strand cDNA, at 68°C for 18 hours. Biotinylated hybrid molecules were coupled to streptavidin, and then removed by phenol chloroform extraction. Any remaining cDNA was also ligated into λZAP. All libraries were amplified, prior to immunoscreening.

Immunoscreening was carried out using sera obtained from patients undergoing routine diagnostic and therapeutic procedures. The sera were stored at -70°C prior to use. Upon thawing, the sera were diluted at 1:10 in Tris buffered saline (pH 7.5), and were then passed through Sepharose 4B columns. First, the sera were passed through columns which had <u>E. coli</u> Y1090 lysates coupled thereto, and then lysates from bacteriophage infected <u>E. coli</u> BNN97 lysates. Final serum dilutions were then prepared in 0.2% non-fat dried milk/Tris buffered saline.

The method of Sahin et al., *Proc. Natl. Acad. Sci. USA* 92:11810-11813 (1995), and U.S. Patent No. 5,698,396, both of which are incorporated by reference, was used, with some modifications. Specifically, recombinant phages at a concentration of 4x10³ phages per 15 cm plate (pfus), were amplified for six hours, after which they were transferred to nitrocellulose membranes for 15 hours. The membranes then were blocked with 5% nonfat dried milk.

As an alternative to the IgG subtraction procedure discussed above, membranes were prescreened in a 1:2000 dilution of peroxidase conjugated, Fc fragment specific goat anti-human IgG, for one hour, at room temperature. Color was developed using 3,3'-diaminobenzidine tetrahydrochloride, which permitted scoring of IgG encoding clones.

Membranes were then incubated in 1:100 dilutions of autologous sera, which had been pretreated with the Sepharose 4B columns, as described supra. The filters were then incubated, in a 1:3000 dilution of alkaline phosphatase conjugated Fc fragment specific, goat anti-human IgG, for one hour, at room temperature. The indicator system 4-nitroblue tetrazolium chloride/5-bromo-4-chloro-3-indolyl-phosphate was then added, and color development assessed. Any positive clones were subcloned, and retested, except the time on the nitrocellulose membrane was reduced to three

hours.

Positive clones were isolated and sequenced according to standard procedures. The nucleotide sequences of the clones are set forth in the even numbered sequences from SEQ ID Nos:544-586. The odd numbered sequences from SEQ ID Nos:545-587 represent the translated amino acid sequences of the colon nucleic acid clones. Analysis of probes for SEQ ID NOS:544 and 546 confirmed their universal expression.

The foregoing results reflect SEREX isolation of colon cancer clones using autologous serum. The positive clones were then rescreened, using allogeneic serum, following the same method discussed supra, in example 2, except IgG prescreening was omitted. The allogeneic sera was obtained from sixteen normal blood donors, and twenty nine patients who had been diagnosed with colorectal cancer.

The analysis with the two types of serum revealed that fourteen reacted with a subset of sera from normal and cancer patients, twenty-eight only with autologous sera, and six with both allogeneic and autologous sera. Over 60% of the allogeneic serum samples tested reacted with at least one of these positive clones. About 20% reacted with two or more.

In view of the results described above, further experiments were carried out using serum samples from patients with other forms of cancer, i.e., renal cancer (13 samples), lung cancer (23 samples), and breast cancer (10 samples). The results are set forth in Table 6 which follows:

Table 6: Allogeneic serotyping using colon cancer clones

	Clone Number	Normal Sera	Colon Cancer	Renal Cancer	Lung Cancer	Breast Cancer
25	NY-Co-8	0/16	8/29	1/13	0/23	0/10
	NY-Co-9	0/16	5/29	1/13	1/23	0/10
	NY-Co-13	0/16	5/29	0/13	0/23	0/10
	NY-Co-16	0/16	3/29	0/13	0/23	0/10
	NY-Co-20	0/16	4/29	0/13	0/23	0/10
30	NY-Co-38	0/16	4/29	3/13	0/23	1/10

Of the six clones which were identified as being reactive with autologous and allogeneic

- 60 -

cancer serum, and not with normal serum, two were found to be identical to previously identified molecules (NY-Co-. Four others were found to have little or no homology to known sequences and thus are preferred allogeneic-reactive colon cancer clones. These nucleic acids and their polypeptide translations are presented as SEQ ID NOS: 544-551: SEQ ID NO: 544/545 (NY-CO-5 8), SEQ ID NO: 546/547 (NY-CO-9), SEQ ID NO: 548/549 (NY-CO-16) and SEQ ID NO: 550/551 (NY-CO-38). Of twenty seven allogeneic colon cancer serum samples tested, 67% reacted with at least one of these antigens.

The expression pattern of mRNA corresponding to SEQ ID NOS:544, 546 and 550, as well as other sequences identified via the preceding examples was determined. To do this, RT-PCR was carried out on a panel of RNA samples, taken from normal tissue. The panel contained RNA of lung, testis, small intestine, colon, breast, liver and placenta tissues. The RNA was purchased from a commercial source. RNA from a colon tumor sample was also included. All samples were set up for duplicate runs, so that genomic DNA contamination could be accounted for. In the controls, no reverse transcriptase was used.

Primers were designed which were specific for the cDNA, which would amplify 5'fragments, from 300-400 base pairs in length. The PCR reactions were undertaken at an
annealing temperature of 68°C. Where appropriate, 5' and 3'-RACE reactions were undertaken,
using gene specific primers, and adapter primers, together with commercially available reagents.

Specifically, SEQ ID NOS: 546 and 550 were tested using RACE. The resulting products were
subcloned into vector pCR 2.1, screened via PCR using internal primers, and then sequenced.

SEQ ID NOS:544 and 546 were found to be amplified in all tissues tested. SEQ ID NO:550 was found in colon tumor, colon metastasis, gastric cancer, renal cancer and colon cancer cell lines Colo 204 and HT29, as well as in normal colon, small intestine, brain, stomach, testis, pancreas, liver, lung, heart, fetal brain, mammary gland, bladder, adrenal gland tissues. It is was not found in normal uterine, skeletal muscle, peripheral blood lymphocytes, placental, spleen thymus, or esophagus tissue, nor in lung cancer.

The analysis also identified differential expression of a splice variant of SEQ ID NO:550, i.e., SEQ ID NO:552. When the two sequences were compared, it was found that SEQ ID NO:550 encodes a putative protein of 652 amino acids (SEQ ID NO:551), and molecular weight of 73,337 daltons. SEQ ID NO:552, in contrast, lacks an internal 74 base pairs, corresponding to

30

5

10

nucleotides 1307-1380 of SEQ ID NO:550. The deletion results in formation of a stop codon at the splice function, and a putative protein of 403 amino acids (SEQ ID NO:553), and molecular weight 45,839. The missing segment results in the putative protein lacking a PEST protein degradation sequence, thereby suggesting a longer half life for this protein.

In additional experiments, primers designed not to differentiate between SEQ ID NOS: 550 and 552 resulted in almost universal amplification (placenta being the only exception). In contrast, when primers specific for SEQ ID NO:552 were used differences were seen in normal pancreatic, liver, lung, heart, fetal brain, mammary gland, bladder, and adrenal gland tissue, where there was no expression of SEQ ID NO:552 found.

Northern blotting was also carried out for SEQ ID NOS: 544, 546, 550 and 552. These experiments employed the same commercially available RNA libraries discussed above were used.

Samples (2 ug) of polyA* RNA were analyzed from these samples, using random, ³²P labelled probes 300-360 nucleotides in length, obtained from PCR products. These probes were hybridized to the RNA, for 1.5 hours, at 68°C, followed by two washes at 0.1xSSC, 0.1% SDS, 68°C, for 30 minutes each time.

SEQ ID NOs:544 and 546 were again found to be universally expressed.

Further screening identified additional isoforms of SEQ ID NOS:544 and 550. These are set forth as SEQ ID NOS: 554, 556, 558 and 560. The isoform represented by SEQ ID NO:554 (translated as SEQ ID NO:555) is a naturally occurring splice variant of SEQ ID NO:544, found in normal colon. SEQ ID NO:556 (translated as SEQ ID NO:557), which is an isoform of SEQ ID NO:550 (translated as SEQ ID NO:551), was found in brain tissue, primarily spinal chord and medulla. SEQ ID NO:558 (translated as SEQ ID NO:559), was found in normal kidney and in colon tumors, metastasized colon cancer, renal cancer, gastric cancer, and in colon cancer cell line Colo 205. It was not found in any normal tissue other than kidney.

The nucleic acid molecule whose nucleotide sequence set forth as SEQ ID NO:560 (translated as SEQ ID NO:561), is a further isoform of SEQ ID NO:552. It is similar to SEQ ID NO:558, except it contains a long nucleotide insert encoding a longer COOH terminus. It was expressed in normal bladder and kidney cells, and renal cancer cells. It was not expressed in colon cancer cells.

It is reported above that fourteen clones reacted with subsets of serum from both normal

and cancer patients, while twenty eight reacted with autologous sera only. These clones were sequenced, in accordance with standard, art recognized methods. Of the clones which reacted only with autologous sera, nine appear to be previously unidentified sequences. These are set forth as SEQ ID NOS: 562, 564, 566, 568, 570, 572, 574, 576 and 578. SEO ID NO: 562 5 (translated as SEQ ID NO:563) is 1445 nucleotides long, and shows some similarity to known sequences for myosin and tropomyosin. SEQ ID NO:564 (translated as SEQ ID NO:565), which is 1226 nucleotides long, contains a TPR motif. The sequence set forth in SEQ ID NO:566 (translated as SEQ ID NO:567) is 1857 nucleotides long, and shows similarity to cyclophillins. The nucleotide sequence set forth in SEQ ID NO:568 (translated as SEQ ID NO:569) is 1537 nucleotides long, and shows similarity to murine gene 22A3, which has unknown function, but resembles an unconventional form of myosin, as well as an EST for heat shock inducible mRNA. As for the molecule set forth in SEQ ID NO:570 (translated as SEQ ID NO:571), it appears to resemble a nucleic targeting signal protein. SEQ ID NO: 572 (translated as SEQ ID NO:573) is 604 nucleotides long, and may encode a lysosymal protein. The molecule set forth in SEO ID NO:574 (translated as SEQ ID NO:575) is 742 nucleotides long, and encodes a protein with an SH3 domain and which shows some similarity to GRB2 and human neutrophil oxidase factor. The molecule set forth in SEQ ID NO:576 (translated as SEQ ID NO:577) is 1087 nucleotides long, and encodes a protein which contains coiled core domains. The molecule set forth in SEO ID NO:578 (translated as SEQ ID NO:579) is 2569 nucleotides long, shows some similarity with Drosophila homeotic material tudor protein, and has a DY(F)GN repeat.

Additional sequences were identified which were expressed in both normal sera and cancer cells. The sequence set forth in SEQ ID NO:580 (translated as SEQ ID NO:581), e.g., is 2077 nucleotides long, and was expressed by both colorectal cancer and normal cells. Analysis of the sequence showed that it possesses a nuclear targeting sequence. The molecule set forth in SEQ ID NO:582 (translated as SEQ ID NO:583) is 3309 nucleotides long, was expressed by colorectal cancer and normal cells, and is similar to heat shock protein 110 family members. The molecule presented in SEQ ID NO:584 (translated as SEQ ID NO:585) was expressed in a colon to lung metastasis, as well as by normal tissue. It is 2918 nucleotides in length. Analysis shows that it contains 2 zinc finger domains. The nucleotide sequence of SEQ ID NO:586 (translated as SEQ ID NO:587) was also expressed in a colon to lung metastasis, is 1898 nucleotides long, and is

also expressed by normal tissue. Specifically, the reactivity of the molecules was as follows:

Table 7

5	SEQ ID NO:	Normal Sera Reactivity	Tumor Sera Reactivity
	580	2/16	2/16
	582	2/16	3/16
10	584	2/16	2/16
	586	2/8	1/16

A more extensive set of RT-PCR experiments were carried out to study the expression pattern of SEQ ID NOS: 550, 552, 558 and 560. The results follow.

Table 8: RT-PCR analysis of colon SEREX clones

and the same of th	normal tissue	SEQ ID NO.:550	SEQ ID NO.:552	SEQ ID NO.:558	SEQ ID NO.:560
20	kidney	+	Negative	Negative	Negative
1	colon	+	Negative	Negative	Negative
1	small		Negative	Negative	Negative
4	intest.	+	Negative	Negative	Negative
ì	brain	+	Negative	Negative	Negative
25	stomach	+	Negative	Negative	Negative
	testis	+	Negative	Negative	Negative
	pancreas	+	Negative	Negative	Negative
	lung	+	Negative	Negative	Negative
	liver	+	Negative	Negative	Negative
30	heart	+	Negative	Negative	Negative
	fetal		Negative	Negative	Negative
	brain	+	Negative	Negative	Negative
	mammary		Negative	Negative	Negative
	gland	+	Negative	Negative	Negative
35	bladder	+	Negative	Negative	Negative
	adrenal		Negative	Negative	Negative
	gland	+	Negative	Negative	Negative
	uterus	Negative	Negative	Negative	Negative
	skeletal	-	Negative	Negative	Negative
40	muscle	Negative	Negative	Negative	Negative
	PBL	Negative	Negative	Negative	Negative
	placenta	Negative	Negative	Negative	Negative

- 64 -

	spleen thymus esophagus	Negative Negative Negative	Negative Negative Negative	Negative Negative Negative	Negative Negative Negative
	Tumor Tissue				
5	renal cancer (4) colon primary	+ (2/4)	+ (2/4)	+ (2/4)	+ (2/4)
	tumors (10)	+ (10/10)	+ (10/10)	+(10/10)	Negative
10	colon mets (4) breast	+ (4/4)	+ (4/4)	+ (4/4)	Negative
	cancer (6) lung	+ (3/6)	Negative	Negative	Negative
15	cancer (6)	+ (6/6)	Negative	Negative	Negative
	gastric cancer (1)	+	+	+	Not tested
	colon cancer cell lines				
20	colo 205 HT29 HCT15	+ + Negative	+ + Negative	+ Negative Negative	Negative Negative Negative

Example 8:Isolation and analysis of additional clones

For the establishment of a cDNA library from human tissue total RNA was obtained from

0.5 g of a renal clear cell carcinoma and established according to the method of Chomzynski as
described above The mRNA was extracted from total RNA with oligo-dT-cellulose. The synthesis
of the first strand cDNA was accomplished by the method described by Gubler and Hoffmann, Gene
25: 263 (1983) using RNase H and DNA polymerase I. For adaptation of the cDNA Klenow
enzyme, adaptors with EcoRI restriction enzyme sites were ligated to the cDNA ends using T4 DNA
ligase (Ferretti L and Sgamerella V, Nucl. Acids Res. 9: 3695 (1981)). Following restriction
enzymatic digestion with the enzyme Xhol, cDNA molecules of different length were separated
using Sephacryl 400 and transfected into \(\lambda\text{ZAPII}\) phage vectors (Short JM et al., \(\lambda\text{Ucleic Acids Res.}\)
16: 7583 (1988)). The recombinant phage DNA was packaged into phages after ligation with
packaging extracts and used for the transfection of \(E.\text{coli}\) bacteria. The titration of the library
resulted in 1.8 x 106 recombinant primary clones. The total cDNA library was transfected in \(E.\text{coli}\)
and amplified. The titer of the cDNA library after amplification was 1011 plaque forming units per
ml (pfu/ml). These transfected cells were used in experiments which follow.

10

WO 99/04265 PCT/US98/14679

- 65 -

In accordance with the invention as described above, identification of immunogenic material was achieved by using human sera which has been completely depleted of antibodies directed against antigens derived from native and lytic λ phage-transfected $E.\ coli$ bacteria. To this end, the serum was absorbed, as follows.

E. coli bacteria of the strain XL1-blue were cultured in 50 ml LB medium overnight. After achieving an optical density of $OD_{600} = 1.0$, the bacteria were pelleted by centrifugation, resuspended in 5 ml phosphate buffered saline (PBS), and lysed by sonication. The bacterial lysate was bound onto a matrix of activated Sepharose, which was then put into a column and used for the absorption of the human serum. The serum was run over this column 10 times.

A culture of $E.\ coli$ XL1 blue bacteria in the exponential growth phase was pelleted by centrifugation, transfected in 0.01 M magnesium sulfate with $10^6\ \lambda\text{ZAPII}$ phages without a recombinant insert and incubated in 5 ml LB medium for four hours. The lysate of the transfected bacteria was used in the same manner as the untransfected bacteria, with the human serum described supra being passed through the column an addition ten times.

To complete the depletion of the serum, interfering antibodies from lytically transfected E. coli bacteria were cultured on agar plates and their proteins were blotted onto nitrocellulose membranes after 10 hours of culture at 37°C. Following this, the serum which had been preabsorbed according to the above steps was transferred to the blotted nitrocellulose membrane, and the absorption procedure was repeated five times. The serum, which was processed in accordance with the invention, was totally depleted of antibodies directed against antigens derived from E. coli and phages.

In this, a renal cancer-specific antigen was identified via the following steps. Bacteria of the strain XL1 blue were transfected with recombinant phages derived from the described cDNA library and plated at a density of 4-5x10³ plaque forming units (pfu) per plate in LB-medium with isopropylthiogalactopyranoside ("IPTG"). After 12 hours of incubation at 37°C, nitrocellulose membranes were put on top of the cultures and culture plates were incubated for another four hours. This was followed by incubation of the nitrocellulose membrane for one hour in Tris-buffered saline (PBS) with 5% milk powder. After washing the nitrocellulose membranes three times in TBS, the stripped human serum secured following Example 2 was diluted 1:1000 in TBS/0.5% (w/v) milk power and incubated overnight with gentle shaking. After the incubation with the nitrocellulose

WO 99/04265

30

10

membrane the serum was removed and kept for additional testing. Following incubation with serum, the nitrocellulose membranes were washed three times in TBS, and incubated with a polyclonal alkaline phosphatase-conjugated goat anti-human IgG serum for one hour. Following this, the nitrocellulose membranes were washed repeatedly with TBS/0.01% (v/v Tween 20). The reaction was developed using nitroblue tetrazolium chloride and bromochloro-indoyl-phosphate in TBS. The binding of human antibodies to the expressed protein became visible by a blue ringformed color deposit on the nitro-cellulose membrane. The efficient preabsorption of the serum made in possible to develop the membrane at 37°C over several hours without compromising the quality of the test because of background reactivity caused by antibodies against E. coli and phage antigens.

Positive clones were localized on the agar plates, transferred into transfection buffer, and used for a second round of transfection and subcloning. A total of 1.8x106 recombinant clones were subjected to screening and five different positive-reacting clones were identified.

Positive clones, i.e., those which had bound antibodies derived from the processed human serum, were subcloned to monoclonality by repeated rounds of transfection and testing of reactivity with the processed human serum. P-bluescript phagemids with the respective cDNA inserts were cloned by in vivo excision (Hay B and Short JM, Strategies 5: 16-19, 1992) from the λZAPII phage vectors and used for the transfection of E. coli SOLR bacteria. Plasmids were isolated from the bacteria after alkaline lysis with NaOH in a modification of the method of Birnboim HC and Doly J. J. Nucl. Acids Res. 7: 1513 (1979). The recombinant plasmid DNA was sequenced according to standard methods using M13-forward and M13-reverse oligonucleotides. The DNA sequence obtained and the resulting amino acid sequence were compared with nucleic acid and protein data banks (Gene Bank, EMBL, Swiss Prot). The sequencing of the cDNA inserts was continued using internal oligonucleotides. Analysis showed no homology with any sequences deposited in the data banks. The full length cDNA clone, referred to as SK313, was cloned with the RACE method (Frohman MA, Dush MK, Martin GR, Proc. Natl. Acad Sci. USA 85: 8998 (1988)), and had a carbonic anhydrase domain at the 5' end.

As a continuation of these experiments, RNA was isolated from a spectrum of malignant and normal human tissues and Northern blots were performed with labeled SK313 (also referred to as clone HOM-RCC-313). The Norther blot analysis demonstrated that the mRNA of clone HOM-

WO 99/04265 PCT/US98/14679

- 67 -

RCC-313 was overexpressed in 4 out of 19 renal cell carcinomas compared to normal kidneys. Very weak expression was found only in colonic mucosal tissue and in normal kidney. Expression in other tissues was not observed.

To determine the incidence of antibodies against antigens which are identified above, allogeneic sera from healthy individuals and tumor patients were analyzed. To this end, the sera were processed as described above and depleted from antibodies against antigens derived from E. coli and phages. For the detection of antigen-specific antibodies, phages derived from reactive clones were mixed with non-reactive phages derived from the same cDNA library at a ratio of 1:10 and tested as described above for reactivity with antibodies in the human test serum. The serum which had been used for the identification of the antigen was used as a positive control. The non-reactive phages served as a negative control. A serum sample was positive for antigen reactive antibodies, if the expected percentage of the phage plaques showed a positive reaction. In the case of the renal cell carcinoma antigen represented by clone HOM-RCC-313, the analysis of a spectrum of human sera showed that only sera from renal cell carcinoma patients contained reactive antibodies. Sera from healthy controls and patients with other tumors did not contain such antibodies.

The cDNA for clone HOM-RCC-313 was excised from the plasmid DNA by digestion with the restriction enzyme EcoR1, was separated by agarose gel electrophoresis, followed by extraction from the gel. This was then used to create a vector which expresses a fusion protein with the bacterial protein anthranilate synthetase. A relevant fragment in the exact open reading frame was cloned into pATH plasmid vectors (Koerner et al., Meth. Enzymol. 194: 477 (1991)). Induction of protein expression was obtained after transformation of the plasmids into E. coli of strain BL21 as described (Spindleret al., J. Virol. 49: 132 (1984)). Expressed fusion proteins were separated by SDS gel electrophoresis, excised from the gel, eluted and freeze dried. Rabbits were immunized by subcutaneous injection with 100 µg of the lyophilisate combined with Freund's adjuvant according to standard procedures. Immunization was repeated three times at two-week intervals using incomplete Freund's adjuvant. The rabbit was bled and antiserum was obtained. The obtained antiserum was depleted from antibodies reactive with E. coli and phages as described above and tested for reactivity against the renal carcinoma antigen as described for the human serum.

Reactivity was detected at dilutions of 1:>100,000.

30

Additional clones were identified from pancreatic cancer tumor specimen using the SEREX method of Sahin et al., (1995). A cDNA library was prepared and reacted with high titer IgG in sera of pancreatic carcinoma patients. A total of 8x10³ clones were screened with autologous serum, and 4.5x10³ clones were screened with three different allogeneic sera. Twenty three clones, representing seven different transcripts were found. Four were previously unknown, unisolated genes. Of the remaining three, glycolytic enzyme aldolase A was found (SEQ ID Nos:799 and 800). Another molecule was "known" in that it was homologous to the rat eIF-5 gene (SEQ ID Nos:801 and 802), which is a eukaryotic translation initiation factor. The human eIF-5 gene was not previously known.

When hepatocelullar carcinoma libraries were studied in the same way, a total of 1.5x106 clones were screened, and 98 positives were found. A total of 59 of these were sequenced, and corresponded to at least 20 different transcripts. Nine of these were assayed with allogeneic sera from hepatocellular cancer (HCC) patients and normal patients. High titered antibody was restricted to HCC patients. The majority of isolated sequences did not correspond to known molecules. Three which did were human albumin (SEQ ID Nos:803 and 804), senescence marker protein SMP30 (SEQ ID NOs:805 and 806), and C3VS (SEQ ID NOs:807 and 808). The latter was overexpressed in 2 of 4 hepatocarcinoma tissues, as compared to normal. Expression of SMP30 was found to vary highly.

The methodology was combined with subtractive cDNA techniques when assaying leukemia cells (T-ALL). An antigen was found which was identical to a broadly expressed, DNA repair enzyme.

Further assays identified the known molecule galectin-9 (SEQ ID NOs:809 and 810), as being highly expressed on human macrophages and dendritic cells. Expression is upregulated during differentiation of monocytes to macrophages. Highest levels were found on monocyte derived, dendritic cells.

Fusion proteins "LD1-mFc" and "LD2-mFc" were constructed to help analyze galectin-9. These consist of murine IgG heavy chain fragments, and a lectin domain (LD1, or LD2), as the N-terminus. Analysis indicated that the C-terminal lectin domain binds to the surface ligands, while the cell surface ligands recognized by the C-terminal lectin domain of galactin-9 was expressed only in a small, subpopulation of dendritic cells.

Further analysis of ovarian cancer cells (500,000 clones, using the SEREX method described

25

above), identified previously known antigens MAGE-4 (SEQ ID Nos:811 and 812) and restin (SEQ ID Nos:813 and 814), and six other newly identified molecules.

Further experiments were carried out which involved restin. A variation of restin is known, i.e., "CLIP170", which was reported to mediate binding of endosomes to microlubules. It was found that both resin and CLIP 170 are highly expressed in dendritic cells, and are involved in the formation and transport of macropinosomes, a feature of professional antigen presenting cells. Expression of restin was induced after 48 hours of culture of monocytes in GM-CSF/IL-4 supplemented medium. Highest levels were found in immature dendritic cells. When microlubile systems, which are essential for the activity of restin/CLIP-170 were disrupted, macropinocytosis was lost completely.

Further work with the methodology disclosed herein on glioma identified a clone encoding nm23-H2 protein (SEQ ID Nos:815 and 816). This clone corresponds to subunit B of nucleoside diphosphate kinase, which is implicated in tumor metastasis control. It is also known as PuF, a transcriptional factor, for c-myc proto-oncogenes. Antibodies against the protein were found in 1 of 18 sera of brain malignancy patients, 3 of 20 melanoma patients, and 2 of 20 sera from healthy patients. When expression studies were carried out using RT-PCR, 25 of 28 brain tumor, and 4 or 5 mengioma tumor samples were found to express the gene.

Example 9:Isolation and analysis of lung cancer clones

A cDNA library was constructed from a case of moderately differentiated adenocarcinoma of the lung, obtained from the Department of Pathology at The New York Hospital. The library was constructed in a λ ZAP Express vector using a cDNA library kit (Stratagene, La Jolla, CA).

The cDNA library was screened with autologous patient's serum as described previously [Sahin, U. et al., *Proc Natl Acad Sci USA* 92:11810-3 (1995); Chen, Y.T. et al. *Proc Natl Acad Sci USA* 94:1914-8 (1997)]. Briefly, the serum was diluted 1:10, pre-absorbed with transfected *E. coli* lysate, and a 1:10 dilution of the absorbed serum (final dilution of serum 1:100) was incubated overnight at room temperature with the nitrocellulose membranes containing the phage plaques. After washing, the filters were incubated with alkaline phosphatase-conjugated goat anti-human Fc γ secondary antibodies and the reactive phage plaques were visualized by incubating with 5-bromo-4-chloro-3-indolyl-phosphate and nitroblue tetrazolium. Phagemid clones encoding human

WO 99/04265 PCT/US98/14679

- 70 -

immunoglobulin sequences were subsequently eliminated during the secondary screening.

The reactive clones were subcloned, purified, and in vitro excised to pBK-CMV plasmid forms (Stratagene). Plasmid DNA was prepared using Wizard Miniprep DNA Purification System (Promega, Madison, WI). The inserted DNA was evaluated by EcoRI-XbaI restriction mapping, and clones representing different cDNA inserts were sequenced. The sequencing reactions were performed by DNA Services at Cornell University (Ithaca, NY) using ABI PRISM (Perkin Elmer) automated sequencers.

To evaluate the mRNA expression pattern of the cloned cDNA in normal and malignant tissues, gene-specific oligonucleotide primers for PCR were designed to amplify cDNA segments of 300-400bp in length, with the estimated primer melting temperature in the range of 65-70°C. All primers were commercially synthesized (Operon Technologies, Alameda, CA). RT-PCR were performed using 35 amplification cycles in a thermal cycler (Perkin Elmer) at an annealing temperature of 60°C.

Genomic DNA were extracted from cell lines and frozen tumor tissue. Following restriction enzyme digestion, the DNA was separated on a 0.7% agarose gel, blotted onto nitrocellulose filters, and hybridized to an a ³²P-labeled DNA probe at high stringency (65°C, aqueous buffer). Washing of the blot was also under high stringency conditions, with a final wash in 0.2XSSC with 0.2% SDS at 65°C.

To identify the 5'end of the mRNA transcripts, RACE (rapid amplification of cDNA ends) methodology was utilized using the Marathon cDNA amplification kit (Clontech) and adaptor-ligated testicular cDNA as the substrate. The PCR products, after separation by agarose gel electrophoresis, were cloned into the direct PCR cloning vector pGEM-T (Promega).

Single-strand conformation polymorphism (SSCP) analysis was performed to analyze cDNA from various tissues, using previously described protocols [Dracopoli, C.D. et al., New York: John Wiley and Sons, Inc. (1997)]. Briefly, PCR was performed with 5 μ l RT product in a final volume of 25 μ l, with 2 μ Ci of α^{32} P-dCTP (~3000 Ci/mmole, New England Nuclear) per reaction. The PCR conditions was as described for RT-PCR above. After the PCR, 1 μ l of the mixture was diluted with 5 μ l of denaturing buffer (95% formamide, 20 mM EDTA, 0.05% bromophenol blue, 0.05% xylene cyanol), heat-denatured at 98°C for 2 min, and electrophoresed through an 8% polyacrylamide gel with 10% glycerol. As controls, aliquots of the same samples were diluted with a standard non-

- 71 -

denaturing DNA loading dye and electrophoresed in parallel. The electrophoresis was performed at room temperature at a constant power of 10-12 watts. The gel was then dried and autoradiography performed for 15-24 hours with an intensifying screen.

5 Identification of Immunoreactive cDNA clones

A cDNA expression library of 1.42x10⁷ primary clones was prepared from Lu15, a specimen of moderately differentiated adenocarcinoma of the lung and 8x10⁵ phage plaques were immunoscreened with absorbed autologous patient serum at 1:100 dilution. Excluding false-positive clones encoding immunoglobulin gene fragments, 20 positive clones were identified. These clones were purified and sequence analyzed. Comparisons of the sequences showed that these clones represented cDNAs from 12 distinct genes, designated NY-LU-1 through NY-LU-12 (Table 9). A homology search through the GenBank/EMBO databases revealed that 4 of the 12 genes corresponded to previously known molecules, and 8 others were unknown genes, with sequence identity limited only to short segments of known genes or to expressed sequence tags (ESTs).

Table 9: NY-LU clones

Gene	Gene/Sequence Identity	cDNA	Comments
Designation	[Accession Number]		
NY-LU-1	Aldolase A (N and H type) [X06352]	Lu-15/24, 72, 83, 158, 219, 241	Human fructose, 1,6 diphosphate aldolase A. Expressed in muscle (M type), but also in most other tissues (N and H types). Levels increased in most lung cancers; released into blood upon trauma and in several cancers.
NY-LU-2	hASNA-1 [U60276]	Lu-15/26, 66	Human homolog of the ATP-biding ars A component of the bacterial arsenite transporter. Previously cloned by SEREX from a testicular library (Chen et al., unpolished). Ubiquitously expressed.
NY-LU-3	Annexin 1X [L19605]	LU-15/64	Homosapiens 56K autoantigen. Antibodies to Annexin 1X are found in multiple autoimmune diseases. ubiquitously expressed.

NY-LU-4	Rip-1 [U55766]	Lu-15/65	Human HIV Rev-interacting protein. Expressed in B cells, monocytes and rhabdomyoma cells.
	[655700]		in B cens, monocytes and maodomyoma cens.
NY-LU-5	Unknown	Lu-15/80	Expressed ubiquitously (by RT-PCR).
	[W61291, W92962, etc.]		
NY-LU-6	Unknown	Lu-15/85	Sequence contains no ORF, expressed
	[none]		ubiquitously (by RT-PCR).
NY-LU-7	Unknown	Lu-	Expressed in neuron, pregnant uterus, lung ca.,
	[W23466, AA167732,	15/135,217	parathyroid tumors, etc.
	etc.]		·
NY-LU-8	Unknown	Lu-15/139	Expressed in fetal heart, retin, multiple sclerosis,
	[Z78323, N39225, etc.]		etc.
NY-LU-9	Unknown	Lu-15/145	Expressed in retina, pregnant uterus, fetal liver-
	[W26569, AA036884,		spleen, etc.
	etc.]		
NY-LU-10	Unknown	Lu-15/154	Expressed in colon, pancreas, pregnant uterus,
	[M29204, etc.]		fibroblasts, etc.
NY-LU-11	Unknown	Lu-15/270	Expressed in retina, pregnant uterus, fetal heart,
	[W23466, AA057400,		fetal liver-spleen, parathyroid tumors, etc.
	etc.]		
NY-LU-12	g16	Lu-15/251	Located at the 3p21 TSG locus (see text)

Of the 4 known genes, aldolase A (NY-LU-1; SEQ ID NOs:689 and 690) was most frequently isolated, representing 6 of 20 primary positive clones in the entire screening. NY-LU-2 (SEQ ID NO:691), represented by two isolates, was the human homolog of the ATP-binding arsA component of the bacterial arsenite transporter, a gene which has been shown to be ubiquitiously expressed in various tissues [Kurdi-Haidar, B. et al., *Genomics* 36:486-91 (1996)]. NY-LU-3 (SEQ ID Nos:692 and 693) encodes annexin XI, which is a 56KD ubiquitously expressed antigen to which autoantibodies have been described in sera from patients with various autoimmune diseases [Misaki, Y. et al., *J Biol Chem* 269:4240-6 (1994); Misaki, Y. et al., *J Rheumatol*. 22:97-102 (1995)]. The last gene in this group, NY-LU-4 (SEQ ID NOs:694 and 695), codes for the human HIV Rev interacting protein Rip-1, which has been shown to be expressed in the monocyte cell line U937, the rhabdomyoma cell line RD, as well as in adherent monocytes and primary lymphocytes [Refaeli, Y.

WO 99/04265 PCT/US98/14679

- 73 -

et al., Proc Natl Acad Sci USA 92:3621-5 (1995)].

Of the eight unknown genes, 6 (NY-LU-5, 7, 8, 9, 10, 11; SEQ ID Nos:696, 698, 699, 700, 701 and 702/703, respectively) shared sequence identify with reported expressed sequence tags (EST), likely representing cDNA products derived from the same genes. These ESTs were derived from various somatic tissues unrelated to lung, e.g., neuron, pregnant uterus, colon, endothelial cells, etc., suggesting that these genes are widely expressed in human tissues (Table 9), making them unlikely candidates for vaccine-based tumor immunotherapy. These clones were not further investigated. The only novel gene in this group, NY-LU-6 (SEQ ID NO:697), showed no sequence identity to deposited sequences in the public databases. The tissue expression pattern of this gene was evaluated by RT-PCR analysis using gene-specific primers and a normal tissue RNA panel consisting of lung, colon, kidney, liver, brain and testis. Results showed universal expression in these tissues, and this clone was not further analyzed.

NY-LU-12 is on TSG locus of chromosome 3p21.

The last gene in the unknown gene group, NY-LU-12, was represented by the immunoreactive clone Lu15-251. This clone, 1081bp in length, contained an uninterrupted open reading frame (ORF) of 952 bp, followed by a 129bp 3'untranslated region. No translation initiation codon was identified, indicating that this was a partial cDNA clone.

A sequence homology search revealed that this gene shared up to 30% homology with two different human proteins at its C-terminus (Fig. 1), LUCA15 and DXS8237E (GenBank accession numbers U23946, and P98175) and also shared homology to S1-1, the rat counterpart of DXS8237E [Inoue, A. et al., *Nucleic Acids Res.* 24:2990-7 (1996)]. LUCA15 was subsequently proven to be a gene immediately centromeric to NY-LU-12 on the *TSG* locus on chromosome 3p21 (see below and [Wei, M.H. et al., *Cancer Res.* 56: 2487-92 (1996)]]. Our analysis of LUCA15 revealed the presence of a nuclear localization signal in the putative LUCA15 protein. DXS8237E, was located on chromosome Xp11.23 [Coleman, M.P. et al., *Genomics* 31:135-8 (1996)] and its rat homolog, S1-1, has been shown to be an RNA-binding protein [Inoue, A. et al., *Nucleic Acids Res.* 24:2990-7 (1996)].

Of particular interest, however, was that a short segment (92bp) at the 5' end of NY-LU-12
was identical to a previously identified gene, g16 (GenBank accession number U50839), which was

30

mapped to chromosome 3p21.3 and was interrupted in the small cell lung cancer line NCI-H740.

To compare NY-LU-12 with g16, the full-length NY-LU-12 cDNA sequence was obtained from normal testicular mRNA through a combination of 5'RACE and direct PCR cloning strategies. The predominant cDNA form (SEQ ID No:707), excluding the poly A tail, is of 3591bp in length.

5 An open-reading-frame of 1123 amino acid residues (SEQ ID No:708) was identified (nt. 102-3470), with 101bp of 5' untranslated and 129bp of the 3' untranslated region. The nucleotide and amino acid sequences are shown in Fig. 2.

Comparison with the g16 sequence verified that these two are identical genes and mapped NY-LU-12 to TSG locus on 3p21. However, the reported g16 sequence, 2433 bp in length, lacks the 5' end 110 bases which include the translational initiation codon at nucleotide 102, and also the 3' end 980 nucleotides of NY-LU-12. In addition, 74bp DNA segment (nt. 1587-1659 of NY-LU-12) was absent in the reported g16 sequence. Oligonucleotide primers flanking this 74 bp region were designed and used to amplify RNA from 1 normal lung, 5 lung cancer cell lines, and 6 lung cancer specimens. Two RT-PCR products were seen in every specimen, corresponding to the sizes of the two cDNA variants. It was thus concluded that this variation represents an alternate splicing event which occurs in both normal and cancerous lung tissues. Of interest, however, was the difference in the putative translational products resulting from this additional 74bp exon. In the absence of this exon, the open-reading-frame of NY-LU-12 would end in the termination codon at nt.1736, as reported for g16, with a total length of 520 amino acid residues (in contrast to 1123 residues in the longer transcript). Moreover, this shorter form would not encode the C-terminal portion of the NY-LU-12 protein, the segment responsible for the immunoreactivity of Lu15-251 to the autologous patient serum.

Additional cDNA variants of NY-LU-12

In the process of 5'RACE cloning of the full-length NY-LU-12, three minor forms of cDNA products were identified which varied in their transcriptional initiation site and in their exon usage in the 5' segment of this gene. These variants will be described as transcripts B, C, and D (SEQ ID Nos:709, 711 and 712). Fig. 3 shows the comparison of these transcripts to the predominant cDNA form (transcript A, see Fig. 2).

Transcript B (Fig. 3A, bottom) contains an additional exon of 208 base pairs, inserted at

30

WO 99/04265 PCT/US98/14679

- 75 -

nucleotide 145 of the NY-LU-12 sequence. The original ORF of NY-LU-12 is disrupted due to this inserted sequence, and the AUG initiation codon used by transcript A is thus unlikely to be used by this transcript. A new potential translational initiation site, however, is found within this new exon and would continue the translation into the ORF of transcript A. The final product would be a protein of 1177 amino acids (SEQ ID NO:710), with the 69 residues at the N-terminus different from transcript A. Interestingly, this new exon encodes for a signal peptide not present in the transcript A (Fig. 3A, bottom), and it is possible that these two products are localized to different subcellular compartments.

Similar to transcript B, transcripts C and D both contained additional exon(s) not present in transcript A. Transcript C contained two extra exons in tandem and a length of 364bp, only one of which (137bp) was present in transcript D, Figure 3B. These extra exon(s), inserted at the same alternate splicing site as transcript B, disrupted the original ORF, and the only long ORF would initiate at nucleotide position 498 of NY-LU-12 (959 of transcript C, 635 of transcript D).

Considering the long untranslated region at the 5' end, it is doubtful whether transcripts C and D are indeed translated in vivo.

Correlating with this variation of NY-LU-12 mRNA, Northern blot analysis showed several RNA species in normal tissues, ranging approximately from 3 to 4.4 Kb. The intensity of individual bands also appear to vary among different tissues, suggesting post-transcriptional tissue specific regulation of NY-LU-12 mRNA.

Features of NY-LU-12 and its putative gene product

Analysis of the NY-LU-12 amino acid sequence showed 20 inexact 6 amino acid repeats with a consensus sequence of D(F/Y)RGR(D/E) close to the N-terminus (Fig. 2). These repeats were separated by 4 to 6 amino acid intervals, which showed no apparent sequence homology among each other. This feature in primary sequence is distinctive among known proteins. Hydrophilicity plot revealed that this region, although hydrophilic in general, has regular hydrophobic turns, and these cycles of hydrophilicity changes correspond to the hexapeptide repeats. Although the significance of this characteristic is unclear at present, this segment of sequence is highly rich in arginine and aspartic acid, a feature shared by RNA binding proteins. Similar motifs, rich in arginine and aspartic acid residues, were found in other RNA-binding proteins [Witte, M.M.

et al., *Proc Natl Acad Sci USA* 94: 1212-7 (1997); Wilson, R. et al., *Nature* 368:32-8 (1994); Seraphin, B. et al., *Nature* 337:84-7 (1989); Takagaki, Y. et al., *Proc Natl Acad Sci USA* 89:1403-7 (1992)], e.g., RNA [Seraphin, B. et al., *Nature* 337:84-7 (1989)] hnRNA 3'end cleavage stimulation factor [Takagaki, Y. et al., *Proc Natl Acad Sci USA* 89:1403-7 (1992)], etc., indicating that NY-LU-12 is likely to be an RNA-binding protein. Consistent with this, PROSITE analysis of the putative NY-LU-12 protein identified a bipartite nuclear localization signal between amino acids 1016-1032 and a 4-residue nuclear localization pattern (PRKR) at amino acid 604-607 (Fig. 2), suggesting that NY-LU-12 is a nuclear protein. Analysis for post-translational modification sites showed potential sites for tyrosine sulfation, amidation, as well as phosphorylation sites for protein kinase A, C, casein kinase II, and tyrosine kinase. A PEST region, peptide sequences consistently found among unstable proteins with short half lives, was identified at amino acids 897-928 (Fig. 2), implying NY-LU-12 as an unstable protein.

Southern blot analysis of NY-LU-12 in normal and tumor tissues

To investigate the status of NY-LU-12 in normal and tumor cells, Southern blot analysis was performed on 9 lung cancer cell lines (3 adenocarcinoma, 2 squamous, and 3 large cell anaplastic), Lu15 tumor DNA, and a colon cancer cell line HT29 (Fig. 4). (HT29 was included due to the finding of an EST identified in the GenBank, accession number AA079461, which appeared to be a fusion sequence between semaphorin IV gene and NY-LU-12.) Using a 1.1Kb cDNA probe (nucleotide 1095-2140) and HindIII digested DNA, the results showed that one of the two hybridizing bands was absent in NCI-H740, confirming that NY-LU-12 was partially deleted in this cell line. The breakpoint of this deletion, by using primers from different regions, was further defined to be between nucleotides 1433 and 1777 of NY-LU-12, with the 3' sequences homozygously deleted. Besides NCI-H740, however, no evidence of homozygous deletion was seen in any other tumor cell line sample or in LU15. The similar band intensities and identical sizes of the DNA signals in all specimens also argued against the possibility of a heterozygous deletion or translocation of this gene, at least in the region analyzed. No change was found in HT29, suggesting that the semaphorin IV/NY-LU-12 fusion sequence in the GenBank probably represents a cloning artifact.

SSCP and sequence analysis of NY-LU-12 in Lu15 tumor DNA.

The mapping of NY-LU-12 to the lung cancer *TSG* locus raised the possibility that an altered protein product due to mutational event may be the basis for the autologous immune recognition. This possibility was explored using DNA sequencing and single-strand confirmational polymorphism (SSCP) analysis.

The DNA sequence contained in the immunoreactive clone Lu15-251 (nucleotide 2518-3599 of NY-LU-12) was obtained from the normal counterpart by RT-PCR cloning using autologous normal lung tissue, and no mutations were found when compared to Lu15-251.

RT-PCR SSCP was then used to analyze the entire NY-LU-12 gene, comparing Lu15 tumor tissue and autologous normal lung tissue. To encompass the whole sequence, 10 sets of primer pairs were designed, each amplifying a range of 205 to 603 bps. For products >400bps, a restriction enzyme digestion step was added prior to the electrophoresis step to further reduce the fragment sizes and increase the assay sensitivity. Results showed no reproducible changes between normal and tumor tissues, and thus no evidence of mutation in Lu15 tumor cDNA. A representative set of SSCP analysis is shown in Fig. 5.

Serological response to NY-LU-12 in lung cancer patient

The frequency of anti-NY-LU-12 response was examined among normal adult and patient sera using the phage plaque assay identical to the original immunoscreening procedure. Of 21 absorbed sera from allogeneic lung cancer patients, one (Lu22) reacted strongly with the Lu15-251 plaque at 1:1000 dilution, and another (Lu7) also reacted at 1:1000, but only weakly. Nineteen other lung cancer patient sera were non-reactive, nor were the sera from 16 healthy donors, 15 colon cancer, 5 breast cancer, 1 renal cancer, 1 prostate cancer, 1 esophageal cancer, and 1 melanoma patients.

Example 10: Expression analysis of additional cancer associated nucleic acids

The clone RING 3 was isolated from breast SEREX analysis as LONY-Br-5 (see above).

The gene was identified as homologous to the "bromodomain testis" gene (BRDT; GenBank accession number AF019085). Analysis of related genes identified BRDT as a gene expressed only in testis, which was then investigated by RT-PCR analysis as described above.

PCT/US98/14679 - 78 -

The primers used to perform RT-PCR had the following sequences:

BRDT F1: CAAGAAAGGCACTCAACAG (bp 543-563 of BRDT)

BRDT R1: TTCACTACTTGCTTTAACTGC (bp 776-797 of BRDT)

The meiotic protein H1T (Histone 1 Testis; GenBank accession number M60094) was

identified through a literature search for meiotic proteins (testis specific expression).

The primers used to perform RT-PCR had the following sequences:

H1F1: TGCCGAACCTCTCTGTGTC (bp 116-135 of H1T)

H1R1: GCTTCGTGTAGATTTAGGAATC (bp 344-366 of H1T)

Table 10: RT-PCR analysis

	Normal Tissue	BRDT	<u>H1T</u>
100	mamman aland		
T. E.	mammary gland liver	•	-
15	small intestine	-	-
TU 13	brain	-	-
4D		-	+/- (very weak)
TU	lung	-	-
I Light	fetal brain	-	-
18	placenta	+	+
20	kidney	-	-
120	skeletal muscle	-	-
ha!	pancreas	-	-
	adrenal gland	-	-
1100	heart	-	-
25	thymus	-	-
	uterus	-	-
	prostate	-	+/- (very weak)
	spleen	-	- ' '
	Testis	+	+
30			
	Tumor Tissue	BRDT	HIT
	Colon	0/6	0/6
35	Breast	0/6	6/6+
	Melanoma	0/12	3/12+
	Lung	8/26+	4/26+
	Renal	0/2	0/2
	Ovary	0/2	0/2
40	Esophageal	0/1	0/1

- 79 -

Gastric 0/1 0/1 Bladder 0/2 0/2

Lung cancer specific expression of BRDT was observed (see table above). BRDT was

expressed only in normal testis and possibly in placenta. The expression analysis of H1T revealed
that all breast tumor samples (6 of 6) and ~30% lung cancers and melanoma tissue samples
expressed H1T. H1T was expressed in normal testis and possibly in placenta and brain.

Example 11: allogeneic serotyping

To confirm the cancer associated expression of SEREX clones, allogenic sera screening of gastric cancer patients' sera was conducted. Sera from normal patients (gastritis) was used as a control for expression of the clones in non-gastric cancer. The screening procedure used was as described above for the SEREX screening, except for the absorption of anti-bacterial and anti-bacteriophage antibodies. The modifications were as follows.

Serum from a stomach cancer patient or a normal individual was diluted to 1:10 in TBS (Tris buffered saline; final volume 5 ml) and passed through a column (BIO-RAD Poly-Prep Chromatography Column, Hercules. CA, USA) containing 0.5 ml Sepharose-4B cross linked to E. coli Y1090 lysate and 0.5 ml Sepharose-4B cross linked to E. coli BNN97 (5 Prime 3 Prime, Inc, Boulder, CO, USA). After repeating the column chromatography 10 times, serum was then diluted to 1:100 in TBS containing 1% BSA and 0.02% sodium azide. To remove antibodies to bacteria and baceteriophages further, 10 ml absorbed serum was incubated overnight with a 82 mm nitrocellulose membrane on which XL-1 Blue MRF bacteria and lambda ZAP Express phages (Stratagene, La Jolla, CA USA) were immobilized. The serum was stored at -80°C until use. For allogeneic typing, an equal numbers of positive phage and negative phage were mixed and plated and processed by the standard SEREX screening procedure.

The results of the allogenic screening experiments follow:

Table 11: Allogenic Sera Screening of SEREX Sequences from Gastric Patients

·D
12 900
(11)
1115
, D
TU
4D
15
m
20
20
J

30

5

Sequence Gene/Clone	Number	Isolated in Serex Patients	Allogenic Serotyping Gastric Cancer Sera	Allogenic Serotyping Normal Sera
RPB-J H-2K binding factor		SM1	6/12	6/16
Telomeric repeat binding protein		SM1	1/12	0/16
Ser/Thr protein kinase		SM1	1/12	0/16
SRY interacting protein-1		SM1	2/12	1/16
Sterol carrier protein X		SM1	2/12	0/16
Archain		SM1	1/12	1/16
HEM-1		SM1	2/12	1/16
Id-1 helix-loop-helix protein		SM1	1/12	0/16
helix-loop-helix transcription factor		SM1	1/12	0/16
Follistatin related precursor protein		SM1,CK, KM	6/12	0/16
Translation initiation factor eIF-4gamma		SM1,SS1, KM	5/12	2/16
M phase phophoprotein I		SM1,SS1	8/12	5/16
Lysal tRNA synthase		SM1	1/12	0/16
Gelsolin		SM1	4/12	0/16
Zinc finger protein		SM1	1/12	1/16
Goliath		SM1	2/12	1/16
zhx-1		SM1	1/12	1/16
SG24		SM1,SS1, KM	5/12	0/16
SG132		SM1	3/12	0/16
S553		SM1	7/12	7/16
S134		SM1	3/12	0/16
S328		SM1	2/12	1/16
S365		SM1, KM	2/12	0/16

Г	FKBP25	KM, SS1	5/12	0/16
	Pros-27	км, ск	3/12	1/16
	BS4	КМ	1/12	1/16
	GnRH-II	КМ	1/12	0/16
	СТВР	КМ	1/12	0/16
	ETF	KM	3/12	1/16
Г	KIAA0438	КМ	1/12	5/16
	KIAA0367	КМ	4/12	3/16
Γ	APK1	КМ	2/12	0/16
,卜	IPP	КМ	1/12	0/16
	Tropomyosin	KM	1/12	0/16
	p63	КМ	1/12	0/16
	KIAA0181	КМ	1/12	0/16
T	KIAA0349	КМ	1/12	0/16
5	RPB1	КМ	5/12	9/15
Γ	PPIM	КМ	1/12	-
	EB virus	КМ	3/12	-
Ī	G.KM073	KM	6/12	-
	G.KM403	KM	1/12	-
0	KM192	КМ	1/12	-
Γ	KM294	KM	1/12	-
Γ	KM362	KM	1/12	-
Γ	KM031	КМ	1/12	-
Γ	·KM081	КМ	3/12	-
.5	KM201	КМ	1/12	-
Ī	KM1496	КМ	1/12	-
ſ	KM334	KM	1/12	-
Ī	KM313	КМ	1/12	
Ī	E-cad/Y	CK	1/12	0/16
10	IPBP	SS1	1/4	-
Ī	OS-9	SS1	1/4	-

10

5

25

30

Kinesin	light chain	1	l SS1	1/4	1 . 1

The screening results shown above confirm the association of the SEREX clones with cancer. There is a higher correlation of cancer and the expression of certain clones, in particular, follistatin related precursor protein, the translation initiation factor eIF-4gamma, the unknown sequence SG24, the FK506-binding protein 25, and the unknown sequence G.KM073. These clones are well suited to serve as diagnostic indicators of disease and as targets for therapeutics (e.g., vaccine compositions) development.

10 Example 12: Preparation of recombinant cancer associated antigens

To facilitate screening of patients' sera for antibodies reactive with cancer associated antigens, for example by ELISA, recombinant proteins are prepared according to standard procedures. In one method, the clones encoding cancer associated antigens are subcloned into a baculovirus expression vector, and the recombinant expression vectors are introduced into a appropriate insect cells. Baculovirus/insect cloning systems are preferred because post-translational modifications are carried out in the insect cells. Another preferred eukaryotic system is the *Drosophila* Expression System from Invitrogen. Clones which express high amounts of the recombinant protein are selected and used to produce the recombinant proteins. The recombinant proteins are tested for antibody recognition using serum from the patient which was used to isolated the particular clone, or in the case of cancer associated antigens recognized by allogeneic sera, e.g. certain breast cancer and gastric cancer associated antigens, by the sera from any of the patients used to isolate the clones or sera which recognize the clones' gene products.

Alternatively, the cancer associated antigen clones are inserted into a prokaryotic expression vector for production of recombinant proteins in bacteria. Other systems, including yeast expression systems and mammalian cell culture systems also can be used.

Example 13: Preparation of antibodies to cancer associated antigens

The recombinant cancer associated antigens produced as in Example 12 above are used to generate polyclonal antisera and monoclonal antibodies according to standard procedures. The antisera and antibodies so produced are tested for correct recognition of the cancer associated

30

antigens by using the antisera/antibodies in assays of cell extracts of patients known to express the particular cancer associated antigen (e.g. an ELISA assay). These antibodies can be used for experimental purposes (e.g. localization of the cancer associated antigens, immunoprecipitations, Western blots, etc.) as well as diagnostic purposes (e.g., testing extracts of tissue biopsies, testing for the presence of cancer associated antigens).

Example 14: Expression of cancer associated antigens in cancers of similar and different origin.

The expression of one or more of the cancer associated antigens is tested in a range of tumor samples to determine which, if any, other malignancies should be diagnosed and/or treated by the methods described herein. Tumor cell lines and tumor samples are tested for cancer associated antigen expression, preferably by RT-PCR according to standard procedures. Northern blots also are used to test the expression of the cancer associated antigens. Antibody based assays, such as ELISA and western blot, also can be used to determine protein expression. A preferred method of testing expression of cancer associated antigens (in other cancers and in additional same type cancer patients) is allogeneic serotyping using a modified SEREX protocol (as described above for gastric clones).

In all of the foregoing, extracts from the tumors of patients who provided sera for the initial isolation of the cancer associated antigens are used as positive controls. The cells containing recombinant expression vectors described in the Examples above also can be used as positive controls.

The results generated from the foregoing experiments provide panels of multiple cancer associated nucleic acids and/or polypeptides for use in diagnostic (e.g. determining the existence of cancer, determining the prognosis of a patient undergoing therapy, etc.) and therapeutic methods (e.g., vaccine composition, etc.).

Example 15: HLA typing of patients positive for cancer associated antigen

To determine which HLA molecules present peptides derived from the cancer associated antigens, cells of the patients which express the cancer associated antigens are HLA typed.

Peripheral blood lymphocytes are taken from the patient and typed for HLA class I or class II, as

10

25

WO 99/04265 PCT/US98/14679

- 84 -

well as for the particular subtype of class I or class II. Tumor biopsy samples also can be used for typing. HLA typing can be carried out by any of the standard methods in the art of clinical immunology, such as by recognition by specific monoclonal antibodies, or by HLA allele-specific PCR (e.g. as described in WO97/31126).

Example 16: Characterization of breast cancer associated antigen peptides presented by MHC class I and class II molecules.

Antigens which provoke an antibody response in a subject may also provoke a cell-mediated immune response. Cells process proteins into peptides for presentation on MHC class I or class II molecules on the cell surface for immune surveillance. Peptides presented by certain MHC/HLA molecules generally conform to motifs. These motifs are known in some cases, and can be used to screen the breast cancer associated antigens for the presence of potential class I and/or class II peptides. Summaries of class I and class II motifs have been published (e.g., Rammensee et al., Immunogenetics 41:178-228, 1995). Based on the results of experiments such as those described in Example 15, the HLA types which present the individual breast cancer associated antigens are known. Motifs of peptides presented by these HLA molecules thus are preferentially searched.

One also can search for class I and class II motifs using computer algorithms. For example, computer programs for predicting potential CTL epitopes based on known class I motifs has been described (see, e.g., Parker et al., J. Immunol. 152:163, 1994; D'Amaro et al., Human Immunol. 43:13-18, 1995; Drijfhout et al., Human Immunol. 43:1-12, 1995). HLA binding predictions can conveniently be made using an algorithm available via the Internet on the National Institutes of Health World Wide Web site at URL http://bimas.dert.nih.gov. Methods for determining HLA class II peptides and making substitutions thereto are also known (e.g. Strominger and Wucherpfennig (PCT/US96/03182)).

The lung cancer SEREX clone polypeptides NY-LU-12 and NY-LU-12B (variant B), SEQ ID NOs: 708 and 710, were subjected to the HLA binding peptide analysis described above, using the NIH website, to identify HLA binding peptides for several common HLA molecules (HLA-A1, A2, A3, A24, B7, B44, and B52). The results are listed below in Table 12.

Table 12: Identification of HLA binding peptides in lung SEREX clones

amino acids of

	HLA	peptide	NY-LU-12 protein	SEQ ID NO
	A1	NVEE-HSFSY	67 - 75	713
		PVDP-NILDY	287 - 295	714
5		DTDY-RSMEY	398 - 406	715
-		DIDI KUMLI	330 100	,13
	A2	SLLE-DAIGC	506 - 514	716
		TLMI-QDKEV	521 - 529	717
		YVSSLDFWYC	533 - 542	718
10		VIVEVLEPYV	671 - 680	719
		KLTD-WNKLA	948 - 956	720
		QLSDLHKQNL	975 - 984	721
		KQSEQELAYL	991 - 1000	722
		KLVDKEDIDT	1042 - 1051	723
15		VMFA-RYKEL	1114 - 1122	724
	А3	OMFG-YGQSK	417 - 425	725
	AJ	GMPVKNLOLK	481 - 490	726
		GLPE-EEEIK	823 - 831	727
20		LLCRROFPNK	958 - 967	727
20		DDCKKQFFNK	956 - 967	720
	A24	EYRD-VDHRL	405 - 413	729
		GYVC-VEFSL	499 - 507	730
		DYGY-VCVEF	497 - 505	731
25		WYCKRCKANI	540 - 549	732
		TYPQPQKTSI	574 - 583	733
		IYRSTPPEVI	663 - 672	734
		HYYQ-GKKYF	754 - 762	735
		VYVP-QDPGL	816 - 824	736
30				
	B7	WNRDYPPPPL	26 - 35	737
		MPPV-DPNIL	285 - 293	738
		TARD-AQRDL	432 - 440	739
		GPSEEKPSRL	448 - 457	740
35		TPPEVIVEVL	667 - 676	741
		RVMFARYKEL	1113 - 1122	742
	B44	REMG-SCMEF	272 - 280	743
		EEOSSDAGLF	376 - 385	744
40		KEYN-TGYDY	490 - 498	745
		TEAKOELITY	566 - 575	746
		VEALRVVKIL	710 - 719	747
		GEYG-GDSDY	906 - 914	748
		LERREREGKF	1000 - 1009	749

DOWE OF COEFFE

		B52	RQDGESKTIM	650 - 659	750			
			TPPEVIVEVL	667 - 676	751			
			YGFIDLDSHV	701 - 710	752			
			RQFP-NKEVL	962 - 970	753			
	5							
				->				
		NY-LU-12B (variant B)						
		A1	NVEE-HSFSY	121 - 129	754			
	10		PVDP-NILDY	341 - 349	755			
			DTDY-RSMEY	452 - 460	756			
		A2	WQSA-RFYYL	41 - 49	757			
			SLLE-DAIGC	560 - 568	758			
	15		TLMI-QDKEV	575 - 583	759			
)		YVSSLDFWYC	587 - 596	760			
(2)			VIVEVLEPYV	725 - 734	761			
(0)	1		KLTD-WNKLA	1002 - 1010	762			
100			QLSDLHKQNL	1029 - 1038	763			
100	20 J		KQSEQELAYL	1045 - 1054	764			
ľU			KLVDKEDIDT	1096 - 1105	765			
١Ū			VMFA-RYKEL	1168 - 1176	766			
111								
294		A3	QMFG-YGQSK	471 - 479	767			
100	25		GMPVKNLQLK	535 - 544	768			
1100			GLPE-EEEIK	877 - 885	769			
123			LLCRRQFPNK	1012 - 1021	770			
14								
13		A24	YYLN-ATDVL	47 - 55	7 7 1			
1100	30		FYYLNATDVL	46 - 55	772			
			EYRD-VDHRL	459 - 467	773			
			GYVC-VEFSL	553 - 561	774			
			DYGY-VCVEF	551 - 559	775			
			WYCKRCKANI	594 - 603	776			
	35		TYPQPQKTSI	628 - 637	777			
			IYRSTPPEVI	717 - 726	778			
			HYYQ-GKKYF	808 - 816	779			
			VYVP-QDPGL	870 - 878	780			
	40	В7	WNRDYPPPPL	80 - 89	781			
			MPPV-DPNIL	339 - 347	782			
			TARD-AQRDL	486 - 494	783			
			GPSEEKPSRL	502 - 511	784			
			TPPEVIVEVL	721 - 730	785			
	45		RVMFARYKEL	1167 - 1176	786			

20

	B44	SEAWSSNEKF	59 - 68	787
		REMG-SCMEF	326 - 334	788
		EEQSSDAGLF	430 - 439	789
		KEYN-TGYDY	544 - 552	790
5		TEAKQELITY	620 - 629	791
		VEALRVVKIL	764 - 773	792
		GEYG-GDSDY	960 - 968	793
		LERREREGKF	1054 - 1063	794
10	B52	RQDGESKTIM	704 - 71 3	795
		TPPEVIVEVL	721 - 730	796
		YGFIDLDSHV	755 - 764	797
		RQFP-NKEVL	1016 - 1024	798

Likewise, other clones identified herein can be analyzed for the presence of candidate HLA binding peptides using no more than routine experimentation.

Example 17: Identification of the portion of a cancer associated polypeptide encoding an antigen

To determine if the cancer associated antigens isolated as described above can provoke a

cytolytic T lymphocyte response, the following method is performed. CTL clones are generated by

stimulating the peripheral blood lymphocytes (PBLs) of a patient with autologous normal cells transfected with one of the clones encoding a cancer associated antigen polypeptide or with irradiated PBLs loaded with synthetic peptides corresponding to the putative protein and matching the consensus for the appropriate HLA class I molecule (as described above) to localize an antigenic peptide within the cancer associated antigen clone (see, e.g., Knuth et al., Proc. Natl. Acad. Sci. USA 81:3511-3515, 1984; van der Bruggen et al., Eur. J. Immunol. 24:3038-3043, 1994). These CTL clones are screened for specificity against COS cells transfected with the cancer associated antigen clone and autologous HLA alleles as described by Brichard et al. (Eur. J. Immunol. 26:224-230, 1996). CTL recognition of a cancer associated antigen is determined by measuring release of TNF from the cytolytic T lymphocyte or by ⁵¹Cr release assay (Herin et al., Int. J. Cancer 39:390-396, 1987). If a CTL clone specifically recognizes a transfected COS cell, then shorter fragments of the cancer associated antigen clone transfected in that COS cell are tested to identify the region of the gene that encodes the peptide. Fragments of the cancer associated antigen clone are prepared by

20

5

exonuclease III digestion or other standard molecular biology methods. Synthetic peptides are prepared to confirm the exact sequence of the antigen.

Optionally, shorter fragments of cancer associated antigen cDNAs are generated by PCR. Shorter fragments are used to provoke TNF release or 5 °Cr release as above.

Synthetic peptides corresponding to portions of the shortest fragment of the cancer associated antigen clone which provokes TNF release are prepared. Progressively shorter peptides are synthesized to determine the optimal cancer associated antigen tumor rejection antigen peptides for a given HLA molecule.

A similar method is performed to determine if the cancer associated antigen contains one or more HLA class II peptides recognized by CTLs. One can search the sequence of the cancer associated antigen polypeptides for HLA class II motifs as described above. In contrast to class I peptides, class II peptides are presented by a limited number of cell types. Thus for these experiments, dendritic cells or B cell clones which express HLA class II molecules preferably are used.

EQUIVALENTS

Those skilled in the art will recognize, or be able to ascertain using no more than routine experimentation, many equivalents to the specific embodiments of the invention described herein. Such equivalents are intended to be encompassed by the following claims.

All references disclosed herein are incorporated by reference in their entirety.

We claim:

SEQ ID NO. 1:

5 U72994, AC004022, Z68323, AE001160, L34078, AF064863, AC002132, U60440, X66494, N21242, AA678312, W86762, R01605, AA782843, AA275156, W41927, AA874648, AA571241, AA562747, W10480, AA451301, AA866631, AA466667, AA999057, A1029140.

10 SEQ ID NO. 2:

AC004022, U72994, AC002420, AC004125, AA690961, W41927, AA874648, AC004022, U72994, AC002420, AC004125, AA690961, W41927, AA874648.

15 SEO ID NO. 3:

X98371, AL009008, L31790, Z83220, X92946, AC003975, AF008916, U80460, X75544, X66732, X95275, X52177, X07976, AC004451, Z74307, AB000878, AL009179, AF038667, Z78544, Z48008, U23486, J05096, AB000882, Z30213, L11593, U18530, L27325, AC005191, M99579, AA130270, AA158245, AA903098, Al018453, AA436455, AA980593, AA172479, AA637487, AA116588, AA426854, AA050404, AA390025, Al006618, Al048382, C85944, AA673480, Al006510, AA823338, AA413694, W35075, AA015033, AA413584, W29693, AA637069, AA619839, AA125149, AA039004, AA674696, AA871138, AA414747, AA198099, C91478, F071359, AA925957, AA820054, H16496, Al043756, AA892435

AA893551, AA818669, AA892785, AA944026, D33919, N96570, F19798, A1045451, AA800662, D65187, AA944025, AA925731, AA892314, AA9445449.

30 SEQ ID NO. 4:

AA900930, AA925665.

35 SEQ ID NO. 5:

US8105, Z81485, Z54236, Z48584, U61375, M55267, M59856, X51942, U77302, Z48621, AF032455, Z11866, AB013392, L32792, AA871997, AA084083, AA130829, AA083063, AA666229, N38894, D54459, T28921, AA806015, AA512059, A1043087, A1042897

40 AA968324, AA238493, AA237462, AI042885, AI046424, AI035670, AA269430, AA250621, AI035540, AA260613, AA106870, AA2386558, AA106134, AI042683, AA105958, AA144007, AA986558, AA457910, AA389400, AA673056, AA153254, AA754678, AI021109, AA390813, C36687, T41571, AI011183, AI013356, AI011739, AI030260, AA924384, C44421.

SEQ ID NO. 6:

45

AF036717, U91327, AF036718, U56248, Z48795, Z99290, M30697, U58204, M24417, AF022983, M33581, AC004619, H64641, AA477478, AA369676, AA088359, AA057574,

nous pagant

20

AA683066, AA446279, AA332363, T09328, R80982, AA069486, AA410842, C18527, AA293033, H12730, AA287344, AA029631, R83063, AA061290, AA185993, AA880204, AA499308, AA183172, AA242360, AA792388, AA175587, AA277140, AA880395, AA89046, AA859550, C35363, C35702, C32682, F14140, T18049, C83149, T47787

5 AA924623, D47525, Z30723, AA897884, AA042465, AI009871, AA875198, C83016.

SEQ ID NO. 7:

- 10 X74116, AL022148, AC004548, AC000352, Z11664, Z78065, Z74028, AE000163, AE000750, X74229, D90700, R59414, AA176708, W02568, AA354664, R43017, AA973553, F10008, D61827, AA826300, Z41398, T77572, R40189, H85823, W86541, T17276, AA679337, X83357, AA184845, AA416260, AA475603, AA388692, AA764445, AA388689, AA219880, AA290020, AA388507, AA387267, C86741, AA414436, AA451259, AA413796, AA939016.
- 15 AA793690, AA619447, AA062257, AA522026, AA816247, AA892032, AA817702, H33461, AA925507, AA849449, A1029236, AA247069, AA697975, AA882508, AA893258, AA698410, AA891755, AA698227, AA892782, AA699328, T04373, AA567522, AA698408, AA202615, AA141016, AA697974, AA697998, C61176, D69691, A1030205, AA586054.

SEO ID NO. 8:

U08218, L38909, Y11095, AC002431, Z23069, S77418, U39060, L38580, AF053367, Z36506, M18102, J03624, AA102264, AA730686, H47968, AA357170, AA130974, C06054,

- 25 AA626429, F00559, AA604528, AA383348, AA040127, N84965, D54884, D54883, R94309, AA373184, AA128091, W68194, H85283, R76347, AA343938, AA305144, AI049611, AA384516, AA720553, N57395, R97387, D52674, AA169408, H66293, AA456362, T74258, AA730145, AA101952, N86388, AA355003, AA307640, AA385679, AA354542, N99075, N83528, H87678, R84494, R35720, AA670111, AA186452, W32370, D55392, W05161,
- 30 AA641280, AA120503, C77063, AA146393, AA620177, AA509478, C77481, AA427148, AA474531, W83304, AA207424, AA763436, AA958473, AA799243, AA493061, AA967792, AA145256, AA089338, AA756259, AA789767, AA980112, AA866640, AA914516, AA821675, AA466770, AA015387, AA816036, AA246546, AA941789, AA955779, AA997768, AA997534, T43805, AA956150, T18836, T23333, AA525666, T18787, AA800483,
- 35 C64685, AA851367, C91730, AA143899, T23399.

SEQ ID NO. 9:

- 40 AP000056, U43491, Z74919, L81498, Z94054, AC002503, L81499, AA740188, AA630241, AA974724, AA806907, N88859, N98242, H12649, R06485, R06511, AA546258, C76846, AA208416, AA959219, AA276381, W10055, AA462844, AA444278, W13447, W97802, AA542324, AA137880, AA269331, AA175695, W59029, AA003372, AA146233, AI045761, C93154, C94084, C94208, D68027, C12780, AA687005, AA080598, C12876, C12390.
- 45 AA848674, AA924440, T15031, AA451569, H35524.

SEQ ID NO. 10:

DSTEEDED JEDVOO

U25640, AA127328, H24207, H08275, AA283063, AA826096, AA417382, AA464874, W05562, AA453370, N51211, AA495859, R33871, H00927, AA623997, AA220442, AA178568, AA605493, AA394557, AA956116, AA999037, AA818246.

SEO ID NO. 11:

5

AB001740, AF039956, AA581972, AA594539, AA236870, AA464410, AA237069, AA694199, AI038896, AA167314, AA577381, AA430117, N23143, R53610, W37647, AA724229, AA313202, AA860618, W16866, AA134966, AA2555556, AA305224, R50528, AA844013, W32042, W37383, AA908304, W3337, W3133, R55354, N70531, AA46677, AA844013, W32042, W37383, AA908304, W3337, W3133, R55354, N70531, AA46677, AA864013, W32042, W37383, AA908304, W3337, W3133, R55354, N70531, AA46677, AA864013, W32042, W37383, AA908304, W3337, W31337, R55354, N70531, AA46677, AA844013, W32042, W37383, AA908304, W3337, W31337, R55354, N70531, AA46677, AA844013, W32042, W37383, AA908304, W3337, W31337, R55354, N70531, AA46677, AA6677, AA677, AA6677, AA677, AA6677, AA677, AA6677, AA6677, AA6677, AA6677, AA6677, AA6677, AA6677, AA677, AA777, AA677, AA777, AA77

AA, 24, 225, AA, 31, 3202, AA, 300016, W10800, AA1, 34, 900, AA, 25, 35, 85, 5254, N79, 251, AA, 45, 6077, AA, 47, 7700, AA, 47, 7711, AA, 89, 9005, AA, 45, 580, N32, 722, N22, 935, R5, 50622, AA, 135, 5047, R5, 1941, T3, 4020, T3, 416, T32309, AA, 88, 33, 2, W9, 3445, AA, 66, 84, AA, 62, 6749, T0, 82, 24, AA, 25, 55, 72, W0, 3768, AA, 33, 670, W3, 1880, AA, 77, 2832, AA, 23, 30, 74, AA, 51, 1207, W8, 2274, AA, 25, 572, W0, 3768, AA, 33, 670, W3, 1880, AA, 77, 2832, AA, 23, 30, 74, AA, 51, 1207, W8, 2274, AA, 25, 572, W0, 3768, AA, 33, 670, W3, 1880, AA, 77, 2832, AA, 23, 30, 74, AA, 51, 1207, W8, 2274, AA, 25, 572, W0, 3768, AA, 33, 670, W3, 1880, AA, 77, 2832, AA, 23, 30, 74, AA, 51, 1207, W8, 2274, AA, 25, 572, W0, 3768, AA, 33, 572, W0, 3768, AA, 30, 3670, W3, 1880, AA, 77, 2832, AA, 23, 30, 74, AA, 51, 1207, W8, 2274, AA, 25, 572, W0, 3768, AA, 33, 572, W0, 3768, AA, 30, 3778, AA, 30, 3768, AA, 30, 3768, AA, 30, 3768, AA, 30, 3768, AA,

15 AA230365, AA671085, AA511230, AA606681, AA023735, AA444535, W98518, W14718, W85455, AA980318, AA137525, AA035840, AA692158, AA007919, W48013, AA444534, AA981497, AA002566, W48089, W99869, AA960396, AA960580, AA145259, AA145683, AA388960, AA389941, AA266272, AA145124, AA267212, AA959753, AA407991, A175818, AA943997, AA899476, AA899756, AA943998, AA955446, AA012783, AA924956.

AA892219, AA955331, AI012225, AA891436.

SEQ ID NO. 12:

U72994, AC004022, AF043493, U43252, U43251, U81830, U58105, U68242, Z93242, AL009029, M29872, U12980, M81118, M30471, Z56258, AF012943, AC004080, AC002563, AF024533, AF002991, Z63771, AP000042, AF064863, U80017, AC004087, Z55235, L05920, AA508139, N90748, AA450240, AA948158, AA828938, AA165115, AI003312, AA436633, AA419100, AA743442, AA961990, AA885286, AA861312, T84801, AI040166, AA494115, AA652324, AA181105, AA095541, R59256, AA503712, AA700364, AA603821, T60326,

AA779097, A1023884, AA603785, H79111, W39526, AA506607, W94361, N66078, R01605, H22694, W86762, W99303, AA745640, AA678312, AA431870, W41927, AA874648, C92734, C23102, C53080, C91168, D65098, C32959, C50029, M80125, C34452, C83862, C24659, T21473, AA874720, C06696, W43071, A1043300, C53907.

35

SEQ ID NO. 13:

- X94232, U90437, AC003052, U59809, AC004001, M95396, Z67884, X77486, U70051, X14805, AF022976, Z83823, X77485, J04171, AF036007, U05768, U88315, Z98048, AF036009, AC005179, U41277, U32517, AE001138, D64060, M84387, H29022, AA814221, N26314, AA935912, AA873506, AA608576, AA453605, AA232674, Z38725, AA772022, AA025212, AA318330, R48115, AA234084, H18508, N64543, AA970508, R36933, AA306944, H49559, AA325555, H85834, H89988, AA343974, AA648643, H65664, T62713, H18564, N21423, AS64824, AB648643, H65664, T62713, H18564, N21423, AS64824, AB64824, H8988, AA343974, AA648643, H65664, T62713, H18564, N21423, AS64824, AB64824, H8988, AA343974, AA648643, H65664, T62713, H18564, N21423, AS64824, H89888, AA343974, AA648643, H65664, T62713, H18564, N21423, AB648643, H89888, AA343974, AA648643, H89888, AA348988, AA343974, AA648643, H89888, AA348988, AA349888, AA84884, AA84884,
- 45 H16554, N21122, AA351037, AA484621, AA221492, AA259314, C76383, C76336, AA607924, C76394, AA408562, AA921258, A1006352, W41405, AA153317, AA015435, AA027405, AA794066, AA498038, AA184222, AI011068, AA859614, AA899776, AA955080, AA799674, AA849652, A1009788, AA900928, AI007950, AA109392, AA753592, U92780, AA957632, AA567950, A1009495.

SEQ ID NO. 14:

AC000075, U66140, R14195, AA220229, T31199, R19104, R19148, Z46126, AA417619, 5 Z45284, H14105, R84666, AA090321, AA350108, W52840, R48497, R13097, T66255, W44467, AA247676, AA198489, AA388175, AA261453, AA237111, AA790730, AA162394, AA816498, A1013729, AA684961, AA079759.

10 SEQ ID NO. 15:

AF069301, D10651, U11419, U11287, M91562, U90278, U72724, X57855, X79424, M16512, M64542, Z14152, AF016667, L01488, Z75955, AF024504, M13968, W67775, AA934587, AA617696, AA913577, AA628682, W74527, AA969876, AA995606, AA622402, AA027090

- AA620556, AA085733, AA187157, AI031865, AA972318, AA897169, W79046, AA531124,
 AA733183, T90909, Z25096, AA721771, AA115089, T49643, R00622, N93780, R00626,
 AA365494, T71475, N74066, AA027130, T83325, AA115569, AA658299, T55344, T83700,
 AA426250, AA393863, AA282967, R08138, AI000112, AA807574, AA077926, AA397527,
 W87761, AA243026, R56368, H16371, AA958697, AA003997, AA008542, AA036229.
- 20 AA397074, AA250467, AA260498, AA968175, AA253686, AA727785, AI019478, AA474978, AA543461, AA990281, AA245791, AA617042, AA015355, AA983015, AA982200, AA120064, AA462778, AA242574, AA986993, AA986911, AA882490, AA223057, AA543989, W65528, AA848318, AA874979, AA800547, AA945302, AA140994, AA991110, AA851120.

SEQ ID NO. 16:

Z68106, X14199, M14872, Z63497, M31670, AC002123, Z63498, AA280070, AA215687, 30 H93207, AA070367, W95534, AA682436, AA741066, AA173269, AA641255, AA215688, AA724798, N23259, AA442155, AA634563, AA074699, AA642322, AA861347, AA283655, AI002587, W95419, AA357042, AA761253, AA197191, T54480, AA133029, AA378991, AA114599, AA219925, AA174327, AA003800, C86661, AA990433, AA277014, AA445101, AA671205, Al036728, AA241221, AA213304, Al035350, W08919, W36663, AA061406, AA14736, AA240583, AI006563, AA980152, AA250075, AA088967, W17488, AA098269, W10200, AA543712, AA755434, AI012680, AA820868, AA949519, AA391130, AA202576,

40 SEQ ID NO. 17:

AA979150, AA012391, AA539472.

J03592, M24103, AB009386, U44832, J02966, M24102, U27316, U10404, X70847, D12771, D12770, J02683, J03591, U27315, M76669, U39779, M13783, J04982, X74510, X61667, M57424, L78810, AC004000, Z75206, U68723, Z75207, AF009661, X53264, J03320, U66060, AB011800, M77194, AE000021, L07268, AE000936, U03115, AF009663, AA582128, AA916851, AA576667, AA915921, AA916853, N58735, AA428106, AA427849, AI024255, H69807, H11315, N36980, H69597, AA826334, W05080, N37044, AA388873, N48222, AA394173, AA837522, AI0025211, AA292870, T96300, AA360716, AA379604, AA862844, AA430455, AA479859, AA133899, AA669954, H92542, AA095298, AA995794, A1003667,

AA320235, AA864472, T16369, AA588049, AA399159, AA148239, AA143432, AA962682, AA062646, AA335060, AA579762, R10999, AA858417, AA603170, AA292786, AA374867, AA191035, AA191500, AA599385, AA190396, T96301, AA535568, AA857439, AA977124, AA159515, AA719754, R61295, AA079690, AA577057, AA171709, AA552769, AA456451,

- 5 N26291, AA132216, AA070196, H45529, AA160327, AA970357, AA477493, AA421297, AA017413, AA857677, T51717, AA081099, AA977849, N80148, AA335988, AA908779, AA377875, AA385959, R60668, AA335517, AA074035, N74403, N74349, AA573544, W86143, AA001378, R20658, AI025133, AA292257, AA421421, H56664, N39032, AA641715, AA020820, , AI047425, AA472466, AA590221, C79020, AA212086, AA071597,
- 0 AA106338, W08130, W97930, AA592853, AA231046, W64197, C79418, AA823938, AA221509, C79656, AA245954, AA682101, AA855850, AA473492, W08536, AA260905, A1049102, AA185645, W89717, AA109639, AA733290, W33785, C76616, AA733222, AA519045, W34372, AA066569, AA691645, AA572427, C79871, AA255234, W63015, AA689692, AA688470, AA066196, AA403359, AA210393, C81440, W82152, AA563263,
- 15 AA096538, AA008688, AA412918, AA674747, AA214774, AA823987, AA896527,
 AA756088, AA538420, AA124828, AA067750, AA671458, AA792196, AA855848, W14531,
 AA432423, AA562178, AA207523, C77610, AA073011, AA060218, AA691391, AA103515,
 AA245550, AA222057, C78107, AA608092, AA104942, AA408984, AA855192, AA144906,
 AA895345, AA796175, W41390, AA387888, C77993, AA144316, AA716803, AA276281,
 AA396852, AA637534, AA107667, AA119982, W09492, W09768, AA771341, AA144901.
- AA880477, C79311, AA717872, AA272656, C88492, C81442, AA981878, AA606217, AA605671, AA605671, AA605674, AA605744, AA
- 25 AA753701, T00169, C07195, AA750404, W51726, C07173, AA109326, AA753730, AA109292, AA169908, W51717, AA675873, AA751451, F15031, AA842359, W91870, R95270, AA754092, AA751719, AA751718, AA509249, AA753934, AA952484, AA962878, AA751728, AA752131, AA754188, F13957, T41487, AA433419, AA471455, AA471706, AA754093, N60029, AA406919, D67349, AA754187, T41457, R88411, AA406840, AA417423, AA470325, AA680491, AA754048, Z92686, T44319.
 - SEQ ID NO. 18:

- 35 U14003, AE000500, X66784, AF030178, U77066, M10122, M69106, X58072, Z99113, AF004104, AF004101, X55037, X78560, AC004595, X55122, AA481578, AA280143, AA481271, AA280144, AA736516, N79995, R82883, AA355987, AA571000, AA572293, AA738653, AA620225, AA855746, AA563168, AA530645, W40812, AA690944, AA839456, X61848, AA525648, AA141861, AA944854, C94212, AA394778, C83861, H76642,
- 40 AA559379, AA943112.

SEQ ID NO. 19:

45 AE000500, AF030178, X66784, Z49405, M69106, M27174, X55037, AF004104, X78560, U51281, L17405, M10122, AC003106, X55122, X05553, AC002368, AF004101, U77066, U77456, X58072, AA481578, AA280143, AA481271, AA280144, AA736516, AA780050, AA359089, R82883, AA355987, AA571000, AA563168, AA738653, AA620225, AA855746, AA572293, AA530645, W40812, AA690944, AA839456, X61848, AA525648, AA944854,

AA141861, C83861, AA943112, AA957703, H76642, C94212, AA394778.

SEQ ID NO. 20:

5 Z99496, AC004518, AC004219, Z70204, J03925, Z66494, AC003053, U40072, AC002980, S52165, AB009051, M81884, AL021767, Z68164, M18044, J04145, AA383216, AA928132, Z19212, R84841, H83829, T71075, AA723804, H95329, AJ003438, W13441, AA199243, AA242009, AA272568, AA009230, AA880181, AA265864, AA124746, AA801108.

0 AA874804.

SEQ ID NO. 21:

5 U20864, AL021246, AA430998, AA050776, AA104086, AA414390, AA920944, AA624117, AA788028, H36635.

SEQ ID NO. 22:

20

Z81462, AF029308, AC004069, AL010265, AL023828, AC004026, AF076274, U96110, Z71181, AF000265, U59919, Z80108, X66974, Y15994, D50366, D50367, AA034417, AA053882, AA883340, AA132258, AA770253, AA1322362, AA132257, T62545, AA425357, AA721474, AA483037, AA724043, AA491390, W27229, AA047351, AA247867, C01523, AA548452, AA024660, R53754, AA795672, AA199329, AA986113, C81340, AA914941.

25 AA548452, AA024660, R53754, AA795672, AA199329, AA986113, C81340, AA914941 AA536730, AA819693, Z28994, AA142165, AA585560, Z26382.

SEQ ID NO. 23:

30

X60469, AC000394, L08048, X12597, D63874, U51677, S71186, D43920, U59897, AF026132, AB012725, L02751, D88509, M15825, AF017349, AB002361, L49022, Z82196, S68108, AC005266, M60450, M55514, AC004406, AF019611, AC000398, U28932, AF049850, X58671, AC004101, AC004687, AF062921, AF004294, M33190, M73049, U00665, L04132, AF039845, L06147, M60052, X56007, Y00500, X77934, U26708, AL022333, AL021710, AF005720, Y13901, AC003952, U02506, U61387, AC004491, M81784, U00763, M80414, U84223, X87461, AF006040, U82468, AF005900, U29175, D26156, L13025, AL021127.

- X87329, Z82076, U25126, M30298, M34041, S80994, L13856, J03806, U23805, U20951, D82352, M38742, U05192, D76432, M21683, U19460, L48363, D78647, U26259, M55017, L06098, L19713, U88047, S67316, U47276, U28389, U18650, M85183, U07886, U00762, X54504, S67319, M89788, AC002305, AC002370, B24418, Z46377, AA45774, AA5774, A
- X54504, S67319, M89788, AC002995, AC000370, D84418, Z46757, AA167070, AA595202, AA166712, C05079, AA632468, T64162, H14432, AA095130, AA304799, AA541691, W38700, AA593710, AA889358, AA079129, T64291, AA143566, AA481443, AA991543, AA404267, H92212, AA134178, AA991539, AA991535, AA134179, AA248062, AA079130,
- 45 AA634670, D25983, H63841, AI025061, AA531274, AA366296, AA360842, F22618, AA366810, N88386, AA715713, T90564, N38949, AA045606, W07682, D55472, AA557452, AA600212, H89557, AA327933, D20752, AA083771, AA101746, AA563764, AA330028, AA987424, AA054783, D83849, R34185, D52874, R81133, D55190, AI034040, N26696, AA196344, AI041775, AA054719, M79245, H54611, AA813685, R43019, A4426205.

AA527046, R10011, R14525, AA053848, H85928, N85207, AA536117, AA497040, AA017619, AA093385, F08518, T70173, N83954, W28966, H98185, AA506305, R07822, T05370, AA652934, AA021126, AA236110, R93864, AA643226, N52274, AA046288, AA079860, H80808, R54825, W28236, AA537503, AA288865, AA914010, AA546178.

- AA895780, AA921471, AA509592, AI019685, AA792002, AA821727, AA466161, AA122542, AA387328, AA172425, C87724, AA895923, AA259495, W18813, AA960471, C87940, AA921284, Z74659, AA407850, AA675676, AA738607, AA619874, Z74640, AA881206, W97542, AA896321, AA106515, AA562363, AA797955, AA895398, AA123213, AA798375, AA467444, AA123743, AA611503, AA388279, AA516863, AA588982, AA169099.
- 10 AA727617, AA516854, AA560832, AA793428, AA120232, C80564, C81382, AA412789, AA607305, AA039151, AA415500, AA529643, AA080345, AA238459, C80723, AA467433, AA473693, C77886, C80539, AA915029, A1037742, W58796, AA591350, AA623692, AA792889, W91681, AA051589, AA060808, AA116289, AA267544, AA444983, AA498517, AA590755, AI021142, AA114557, AA270502, AA790432, C85885, AA123204, AA170036,
- AA211953, AA438133, W79965, AA591380, AA624294, AA624917, AA386884, AA636994, AA386974, AA469668, AA795177, Al050523, C94974, C83593, C82737, N37420, C92269, H35981, AA818062, C73802, AA720311, D41136, F15112, D46038, Al035042, C83610, AA875659, D41283, C82754, H36775, H32221, D41870, AA860020, C25027, AA224679, Al008510, L46426, C08715, C28364, AA684640, AA941159, D22112, AA264452, D15403,
 - 0 H34930, D40666, D41146, AA750433, C20172, C74114, AA800271, C91616, D23315, AA800199, C27928, C73183, AA801317, AA955860, AA801633, D42374, A1043271, AA816245, AA439680, AA605835, AA540843, D40984, Z71869, AA979311, C70650, A1012063, AA392031, U94861, D15662, C08297, C11108, C11146, C31764, C34637, C37817, C47184, C52269, C54739, C58131, C58618, C36053, AA898501, AA951524, T01370, D40028, D48397, D72544, D72553, AA963561, M89319, D24210, D23745, D72761, C59680, AA820741, T01827, D42962, A1035194.

SEQ ID NO. 24:

DOMERONS

- Z93928, U13881, U70475, X89811, X81456, U20532, X04724, J00748, M25585, J04807, V01243, M12913, AC003074, AE000626, AA662803, AA886335, AA922036, AA878578, AA161103, AA485405, N52768, AA643750, AA910277, N52783, AA657904, AA631339, AA158820, AA485566, N57590, N57604, AA127055, T25136, C21312, N50304, AA127056, C01240, W65459, AA416662, N48671, AA759070, N29058, H06159, R97183, F20369, W74006, AA210618, AA825287, T15787, R67195, T91328, H06144, AA608823, W74282, T52487, R17253, T50700, AA710096, AA793203, AA106190, AA674919, AA691210, AA709564, AA688482, AA709549, AA286083, AA637633, AA863920, C86279, AA940262, AA675156, AA986540, AI006503, C78301, AA413934, W33763, A1035505, AI036707
- 40 AA498683, AI046409, C85159, Z84147, AA893230, C06683, C06682, C06639, C06625, C06581, AI029119, C06813, C06751, C07055, C06613, C06863, C06604, C071135, C071117, C07030, C06535, C07018, C06636, C06511, C06605, C06612, C07058, C06908, C07105, C06559, C06724, AI014020, C07031, C06541, C06767, C06618, C06546, C06906, T75705, C06519, C06802, C06669, C06655, C06560, C07009, C06616, C06506, C06510, C06652,
- 45 C06750, C06806, C06950, C06971, C06974, C06608, C06788, C06890, C06336, C06778, C06831, C07167, C06840, C06946, C06513, C06642, C06914, C07148, C06600, C06925, C07008, AA851621, C06514, C07107, C09614, C06525, H31786, C06858.

20

SEO ID NO. 25:

AF019412, AC004404, X06166, M65066, AF006040, R13835, Z43662, F07559, R87914, AA323632, AA806551, AA331660, AA404545, AA693604, T77601, AI039071, AI017031, AA409340, AA609360, W73671, AA073704, AA6093604, T77601, AA073704, AA6093604, T77601, AA073704, AA6093604, T77601, AA073704, AA6093604, T77601, AA6093604, T76004, AA6093604, AA6093

- 5 AA489394, AA664956, W73671, AA057240, AA129710, AA342548, T93900, W73623, N53667, AA725874, AA804595, AA907520, W56587, H68702, AA323997, T64725, AA884894, AI022045, R02181, AA279068, T19926, AA733025, W51682, AA822148, AA138982, AA267343, AA709923, AA423781, AA185617, AI006077, W82491, AA062192, AA270251, W54396, AA718043, AA451528, AA387186, AA388304, AI021006, AA458323,
- 10 AA734717, C72433, AA940925, T26042, AA998047, AA651398, AA712850, AA979380, AA851912.

SEQ ID NO. 26:

D38548, M59201, U67559, L29453, L27707, X52142, M58326, U49350, AL021806, AA323338, AA287807, AA378829, AA826533, AA524104, AA928732, AA127169, AA515984, AA962233, AA332628, W90207, W55983, R98570, AA937512, AA190722, AA409809, AA027693, W15854, W82920, W14373, AA624765, AA958909.

SEQ ID NO. 27:

AJ005458, S90449, S74572, D17412, D17411, U09218, D45860, D45861, D45859, S87759, S87757, AJ005457, J04503, D28117, AL009051, AL022603, M86359, Z84489, AA625572, AA431963, AA180531, AA180520, AA379401, AA164383, AA135096, AA769851, AA465249, Z19798, Z20951, AA625571, AA854244, AA625051, AA193078, X85622, N88139, AA179618, R33159, R79167, AA613881, AI042584, N83569, AA360057, AA011060, AA154560, AA276352, W54488, W54415, C87503, AA549511, C85223, W08528, AA656770, AA97692, AA855719, C85235, AA407160, AA516930, AA240636, W41595, AA475660, AA914011, AA537063, W42402, AA033036, AA644993, AA517242, C85347, AA525713, AA962971, AA998206, AA394677, AA998046, Z71861, H31577, C19204, AI045015, R65006.

35 SEQ ID NO. 28:

D79209, U33840, U55042, AF000168, U76615, L28716, U31977, L25548, L23646, AF037987, AF037988, AF037986, X16944, AF037455, X61920, AB004061, U21050, K00824, Z47005, U02478, L00627, Z74150, M35657, AF037984, X15477, AA070233, AA768890, AA704738, AA491544, AA747198, AF012388, AA453482, AA393092, AA351249, F08069, AA576778, C18739, W02878, AA260806, AA792752, A1037115, AA107079, AA606798, AA267705, AA833235, C79173, C79128, C78861, AA655446, AA254466, AA674661, AA212535, AA008734, AA879626, W41067, AA619200, AA087347, AA138013, AA547261, AA002419,

Z84812, X56744, AB007445, AE000947, AF038854, X98801, AB013487, U40575, AF002992,

45 AI021096, AA275231, AA433044, AA221284, AA822351, AA014416, AA986428, AA221500, W64585, AA739293, AA450489, AA616218, AA673749, W09948, W80148, AA058081, AA111583, AA109879, AA516815, AA759685, AI047206, AA036090, AA475741, AI044800, W00180, AA997260, AA439137, AA996688, AA964874, AA750540, AA749776, C36210, R03414, AA520514, AA519480, T01878, AI026368, AA531657, H77262, T01090, N38684.

35

AA965082, R46894, T37779, T37753, T38689, C24841, AA519236, T38077, N60531, C56520, C39038

5 SEQ ID NO. 29:

M37030, AF035811, AF073312, X61452, AF061152, AF006988, U59632, AF061153, Y11593, U74628, U08103, Z98866, Z69710, U52918, U52919, D89208, AA262134, AA262133, AA459232, AA261944, AA465590, AA480946, AA252838, AI003777, AA322577, W05228, AA323006, AA451780, T09445, R55858, AA324456, R87202, F11317, T30876, AA322117, AA357101, AA853747, AA325651, AA683394, W69297, H46499, AA055270, AA350932, H14250, AA024634, AA234283, L44408, AA604064, N55150, AA462547, AA146273, AA789450, AA873999, AA791509, W64849, W85596, AA444524, AA572240, AA032529, AA469889, R75180, W53226, AA020101, AA762779, AA869090, R74897, AA238408,

AA867045, AA415500, C78795, W54807, AA266548, AA511393, R74879, F14565, C57606, C57776, C59287, AA539919, D35810, C65610, D36489, D34951, AA950835, C66232, A1012506, C62041, D37043, C67579, AA696662, C60241, C13766, C69199, AA685788, D66025, D66320, D66176, AA550227, D66297, C57131, C58693, D65593, AA800156, D65694, C64990, D69331, D65426, D68791, D66117, D66340, D66241, C12616, D66000, P76149, D65431, H34478, D69657, D65625, M89459, AA819212, D69682, D70222, D65711, D65685, D69823.

SEQ ID NO. 30:

AL022394, Z54200, U12024, AF025391, S73606, L08068, U01053, AP000046, AA282633, H83341, AA744757, AA047741, AA975917, W45279, W90155, W79733, H01158, N47513, AA688093, AA865203, W90027, AA595381, AA054203, AA478596, AA100549, T80668, AI049820, AA047691, AA969720, AA086374, AA159414, W39756, AA159315, H83695, AA909221, T06258, AA969838, AA013361, H05751, H05858, AA665540, D12197, H01159, AA933811, D12219, AA282525, C05204, N47512, R57383, F18424, D79284, W92778, H18813, H20386, N77238, R84635, AA204675, R80129, W95005, T85150, AA523436, AA743656, T84782, W95004, R55724, AA572180, AA790119, W96964, AA420091, AA169954, AA623914, AA623971, AA681631, H32698, AA735717, AF026318.

SEQ ID NO. 31:

X17644, AC002310, U95742, L37045, Z92835, L38828, L07843, X56910, AF025468, X62379, X53599, X73911, X57331, U22851, AC004217, AA488455, AA112360, AA085969, W39758, AA450255, AA385764, AA306361, F08788, AA13458, AA331334, AA357236, N83925, AA319543, AA907882, AA295194, AA780612, AA805179, AA091629, AA233394, T52577, AA352655, AA211401, AA223759, AA187286, T51341, R66786, H17719, T08767, AA865254, AA761172, AA219613, AA169748, AA761180, AA878125, M62053, H97773, AA775004, N47792, AA580452, N77885, H20947, R39533, R16161, AA916422, AA446700, AA918094, AA960808, AA873720, H84809, F10962, D78656, AA917945, AA404653, W67540, AA430019, AA643603, AA603207, AA446573, A1014813, AA988575, C14668, R15819, AA769334, A1041235, R46057, W19901, W55959, H60522, AA219635, AA133573, AA406042, AA670040, A1022461, A1005124, AA931798, AA918010, AA904626, AA708261.

AA721503, AA279498, R46796, R12508, Z40330, AA455678, AA054518, N36991. AA879059, AA683027, AI026067, AA669953, AA088745, W55958, AA396956, AA555800, AA154170, AA981643, AA071792, AA066012, AA981626, AA154214, W14994, AA197464. AA109909, AA260252, AA416413, AA389313, AA204468, AA109518, C77638, C77886,

AA183642, AA415277, AA987053, AA138979, AA145942, AA666768, AA795476, AA197732, AA815895, AA106800, AA657049, AA096871, AA671011, AA062392 AA474044, W46023, AA959293, W35880, AA516832, D67123, AA495624, C74197, D68097, C24919, D65118, X73715, R30624, AA586106, AA819013, W43432, AA799892, AA858586,

AA142059, T44911, C92734, AA952406, AA495523, AI030315, AA676129.

SEQ ID NO. 32:

10

13

PU.

10

AF017364, D78609, AF011331, AJ223316, X69524, AF019907, AF009411, AF009413, U44430, AF069324, AF001501, AF009959, M99575, Z54362, U60149, AF029349, AJ005572, Z28367, Z97178, D83476, U62398, AF001688, U50847, AF022732, AF045770, AF019887 AF006628, L41731, AF026216, U74296, AF016371, AF006627, AF020187, AB002739, AB002741, AJ225108, S80963, U19482, D83352, AB002728, U38894, AF001522, U46118. AB002794, U82480, AB002730, U10355, AJ005969, AF022733, Y15794, U14936, AF019043, S51033, U58090, AB002777, X71980, AB015609, U25846, U55848, Y14339, AB002533.

- U43527, U48288, AF004947, L10111, U35364, AF058796, U08214, AF023132, Y11879. Y13865, U33214, U41060, AF048691, AB005545, M69042, U37699, U40802, Y09455, X77990, U64609, AF071010, L49502, AD000017, S68736, M82977, AA121558, AA927567. H92975, R67157, AA039781, AA078892, AA454159, AA354002, AA934648, AA356829. H58224, AA316922, AA977788, H78570, AA953223, AA992339, U30151, H48430, D82132,
- D57213, C75478, C18748, C75472, C75170, D82799, AA362857, AA374918, C75020, Z28355, AA357303, C05952, AA301748, D63057, D82421, C75176, AA669404, C05853, AI016032, C16591, D59976, C75108, D57346, C75118, C19093, L48852, T27986, U30155. D62770, AA317816, AA365617, D52369, T11092|, C06140, AA357401, N93837, D51124,
- N75780, C18589, AA083604, AA471140, AA354268, C06018, Z21605, L48853, H90908, AA188141, D57197, AA573490, AA587755, AA070452, AA302374, AA303144, AA352846, AA374865, AA976510, T69957, D60150, D80615, N71594, C05868, C14789, AA355029, H73203, AA113291, AA303336, AA358041, AA301756, D59695, T27384, C18745, AA308574, AA271637, AA549023, W85152, U31322, AA106372, AA795651, AA457999,
- AA681967, W49394, AA221922, AA276547, AA242387, AA061250, AA146431, AA021897, AA596536, AA183239, AA271248, AA389067, AA871189, AA145354, W09313, AA030290, AA871865, AA124414, AA052617, AA871752, AA544610, AA117188, AA869120, AI049175, AA266008, W98973, C76233, W66614, AA199206, AA221363, AA254150, AA268605. AA867829, AA185301, W12393, AA073318, AA174921, AA212810, AA254516, AA387162.
- AA596462, C77430, AA986671, AA062512, AA388966, AA555783, AA177472, AA106040, AA553155, W30212, AA286196, W12857, AA717172, AA065453, AA267923, AA242444. AA396448, AA217994, AA111828, AJ005971, AA123661, AA114501, AA752812, R47079, AA754144, AA509249, AA509214, AA754103, AA840962, AA840909, AA754200. AA509237, W51718, AA753300, AA509309, AA842677, AA752086, AA754036, AA753093,
- AA754159, AA754172, AA754167, AA751994, AA751845, AA751998, AA752003, AA751816, AA752422, AA751932, AA751561, AA753150, AA754119, AA840970. AA752005, AA842862, AA752043, AA752907, AA752718, AA752020, AA840977. AA752035, AA752016, AA753086, AA109333, AA701820, AA752034, AA547916, AA840986, AA547812, AA841367, AA751857, AA406980, AA471673, AA842464,

PCT/US98/14679

OSTSESES DESIZOS

30

AA840972, AA842001, AA751834, AA753165, AA751921, AA754646, N94700, AA753087, AA964820, AA756947, Al043420, AA180549, AA109417, AA752726, R46936, AA509142, R47062, R47121, AA751866, AA842064, C39627, AA752073, R46926, AA751679, AA052011, AA751805, AA738551, AA754140, AA430916, AA842660, AA841358, AA840999, AA753219, AA406761, AA751829, AA751919, W06556, AA753085, AA752022.

SEO ID NO. 33:

10

U10079, U22176, Z97192, X86553, D16432, Z68908, X98417, X97752, AC005176, AC004235, AA211771, AA019927, AA621920, R49915, AA436746, D81089, F07201, AA279576, R61642, AA363761, N90952, AA351423, W85802, AA827923, N41673, AA452942, AA252094, W95240, AA188552, T99151, T53177, AA223851, AA677535,

AA753149, AA753147, AA751841, AA753185, AA180648.

15 AA770162, W85753, H58876, AA017014, W57195, AA117575, W41201, AA415215, AA797940, C76608, D16065, T18290, D16046, AJ225545, AA713066, AJ225477, D22650, AA944738, AA849372, T25220, D23185, D22651, D23309.

20 SEQ ID NO. 34:

AF041845, U48436, AF012624, L76569, AF025020, AF060179, U51281, Z37092, L12249, D83476, AF017434, AF062008, Z97198, AP000046, AA367417, AA852175, W67669, AA303139, AA243251, AA896193, AA881167, AA989888, AA683969, W62376, AA250652, AA512820, AA237481, AI036738, AA547433, W97958, AI036611, AA656921, AA892380, AA926074, D72379.

SEO ID NO. 35:

AF069301, D17030, D17201, S80107, M15888, U09205, J00127, J00128, M64982, L11356, M58569, AE001140, D10667, M77812, AF001548, U39850, AA188052, W28824, AA380387, AA393863, AA426250, F00243, AA157205, R00525, AA137720, AA244463, AA118832, W397106, AA674322, AA645183, AI020701, AI019310, AA717623, W48327, AA153061, AA103723, AA800548, T46478, AA751512, C10724, C60506, AA819627.

SEO ID NO. 36:

40 U81160, U35246, U66865, AF036234, Z71178, R52780, AA336715, AA337057, R12336, AA296712, AA291962, AA336501, AA387806, AI020063, AA109010, AA867718, AA606883, C11880, AA698152, D65730, AA851373, AI028830, AA941242.

45 SEQ ID NO. 37:

SEQ ID NO. 38:

Z46933, AC003957, X64346, U18759, L31881, U18761, J04123, X79489, U18760, AB012234, U11280, Z35865, AC002461, AC004780, AL008980, Z79601, U23404, Z74859, D89119, AC000387, M76665, Z48149, AA948725, AA226732, AA232882, AA232883, AA767922, W39443, N40268, W06854, AA337266, AA319281, T08800, AA094683, AA151630, T33776.

5 AA151882, AA384011, R21292, AA806313, AA047744, AA411384, H41338, H41318, H50377, C89065, AA221399, AA163971, Z36313, AA120075, W64578, AA673947, AA285838, AA607874, AA798884, C86947, W62715, AA790168, A1037229, A1036718, AA920062, AA866467, Z30824, AA610965, AA907958, AA495425, W43775, C41467, C20235, C20223, C19643, C20439, C68506, C73712, C20236, AA978809, M89274, D74720, AA712627, D74758, C19867, AA816719.

SEQ ID NO. 39:

L41560, Z66499, AC003970, AE001177, AF051320, K02212, D88539, U35665, L41069, Z38118, AA744773, W67994, AA046574, AA130298, N71111, R77986, H61835, AA134115, AA722572, N51491, Z36854, H61836, AA458506, AA459607, AA862531, W68186, AA046661, AA459381, R77891, R60953, AA73213, W05472, AA442998, AA136770, AA127983, AA229166, AA741465, AA003716, AA204457, W34842, AA097555, AA674958, AA770799, W81850, AA623806, C78185, AA002533, A1030850, D26771, AA924818, AA848998, AA923967, A1045386, H32633, AA956916, D86678, T14138, AA925473.

SEQ ID NO. 40:

25

AB002307, X06289, Y00222, U59322, U28964, X61754, AJ004801, U13913, X79339, AA164880, R02386, AA219744, AA324396, D82199, AA113090, AA305260, AA171458, R59748, R35620, AA326344, AA227875, AA366276, H29212, AA505691, R78747, AA406622, AA020232, W64555, AA450476, W44167, AA049918, W64627, R75474, AA517492, AA612452, AA711884, AA212469, AI048148, AI046831, AA671392, AA855606, AA016843, AA031134, AA208052, AA619148, W34918, AA851114, AA901667, AA054812, AI001233, AA955131, AA943821, AI008608, C72506, AI001373, AI001376, D25096, D21962, AA997901, AA824936, AA998885, AA824820, AA998125, AA859586.

35

SEQ ID NO. 89:

AF069301, D17030, D17201, D10651, U90278, U11287, U11419, M91562, U28411, J00127, J00128, L11356, AE001140, M58569, U72724, M64982, AC002082, AF016667, M80474, X57855, M64542, X79424, Z75955, AF024504, M16512, M13968, M96930, W67775, AA617696, AA934587, AA628682, AA913577, AA969876, W74527, AA995606, AA622402, AA027090, AA426250, AA393863, AA620556, W79046, AA085733, AA187157, A1031865, AA027130, AA115569, AA897169, AA972318, AA365494, AA282967, AA531124, AA733183, T90909, T71475, Z25096, T83700, W28824, AA721771, AA188052, T83325, AA15089, T49643, R00622, R00525, R08138, N93780, R00626, R00521, W67774, N74066, AA157205, AA380460, AA658299, AA380387, T55344, F00243, N55668, AA353778, AA815401, AA399269, A1018748, AA412669, A1028745, A1025290, A1000112, AA813227, AA807574, T61743, T74407, AA397527, AA077926, T60362, AA344542, H67459, T73868, AA026737, T95711, N33594, T72304, W87761, T71715, T72978, T74485, H58121.

AA382695, T68055, T72803, N76269, AA243026, AA003997, AA250467, AA968175, AA260498, AA958697, AA397074, AA008542, AA036229, AA253686, A1019478, AA727785, AA543461, AA474978, AA990281, AA289292, AA277873, W91218, AA617042, AA245791, AA980640, AA015355, AA153061, AA467514, AA983015, AA244463, W97106, W88327, AA118832, AA717623, AI020701, AA674322, AA137720, AI019310, AA645183, AA066905, AA575384, AA690248, AA030780, AA717411, W89322, AA103723, AA145999, AA543989, AA223057, AA982200, AA462778, AA242574, AA882490, AA986911, AA986993, AA450716, W65528, AA675395, AA120064, AA848318, AA874979, AA800547, AA800548.

SEQ ID NO. 91:

10

COLL

ru

0

TU U

AA945302, AA991110, AA140994.

AC002406, AF004731, X59720, U38194, Y13577, M16506, M34435, X92479, AL021841, U04322, X06487, AF022814, Y12819, U19536, AA161279, AA313555, N73050, AA349808, R55892, R12074, AA306333,AA808521, AA112736, AA374663, R11472, T07091, AA332703, N55712, AA128949, AA220981, W23692, T34200, T04966, AA442929, AA223449, AA304362, W05553, AA306300, AA121411, AA126735, AA115299, AA127895, R40004, H16408, T91226, W07681, AA977084, AA282371, AI041091, T53269, AA907901, AA405604,

- AA975477, AA656943, AA415300, AA547177, AA152969, AA727497, AA008280, AA510078, AA874162, AA675276, AA815601, AA125094, AA170008, AI036039, AA546442, W98981, AA711690, AA855201, AA636479, AA220116, AA240658, AA217941, AI046964, AA822123, AA693080, AA212971, AA674507, AA028682, AA111514, AI042785, AA656185, AA027752, AA511695, AA647841, AA693239, AA511469, AA146356, AA288692,
 AA623827, AA681271, AA414089, AA989996, AA612104, AI007318, AA118257, AA422575.
- 25 AAO23827, AAO81271, AA414089, AA989996, AA612104, A1007318, AA118257, AA42257 W55838, AA738879, AA756022, AA867694, AA870171, C19406, H32373, AA577635, D48085, AA925604, AA415115, D47710, AA246139, D48681, D46931, D36706, AA957746.

30 SEQ ID NO. 93:

AF039700, AF039699, U66201, U66197, AF020738, U85773, Z46966, AC004301, U86662, W22160, AA860926, AA348243, AA551799, AA327309, AA344913, AA121174, AA121198, AA001561, AA040802, AA215903, AA826741, W32428, AA888147, AA403143, AA946650,

- 35 AA969632, AA872272, AA903406, AA860208, AA577174, AA514777, AA160827, AA041240, W45005, A1005324, A1005204, N72025, AA806381, AA725024, AA262229, AA927863, AA172158, AA039536, R02514, W47466, AA587486, AA69243, AA814296, AA877455, AA435587, AA393904, AA022495, W47341, N35888, N35076, AA974988, N21678, N72024, AI040354, AA804907, AA573297, AA416559, AA401079, AA417295,
- 40 AA873216, AA824270, AA759038, AA757360, AA628544, AA618498, AA503727, AA460961, AA461270, AA813115, AA759377, AA770473, AA262162, AA416815, R82551, AA948291, AA416734, N98472, AA431486, H30248, AA161105, AA852281, AA616807, AA106439, AA711859, AA049011, AA016868, W61547, AA009071, AA543280, AA467482, AA106301, W83172, AA103139, AA000268, AA014223, AA138067, AA230758, AA833479,
- 45 AA014768, AA276740, AA038869, AA797372, AA185487, AA881111, AA763419, AA790448, AA469884, W77724, A1048515, AA007762, AA497479, AA033481, AA475425, A1047077, AA068686, AA796056, C87249, AA921560, W87202, AA542324, AA967316, W62989, AA530735, AA218431, AA591243, A1047609, AA692425, AA966976, AA856298, W20935, AA111190, AA230661, AA840087, AA089210, A1035925, AA824205, AA793845,

WO 99/04265 PCT/US98/14679 102

AA239210, AA711873, AA645119, AA957268, T00613, C82607, AI012760, AA801145 AA859865, AA859542, C83463, AI009035, AA956139, AA859448, AA660819, AI009631. AA874930, AA801144, H32878, AA125602, Z32602, C68472, AA943364, AA785775. Z33974, D46069, AA660859, AA955567, D45997, Z32603, AA842765.

SEQ ID NO. 95:

5

COURTERS

X99728, X59048, AF039698, U48696, S78798, U39066, U66300, AF045432, Z97178. AF027174, AB000098, U52868, U37573, U65376, Z49980, AF033565, AF033097, S83098. G29060, U34048, AJ001103, G29058, U44386, X99051, U41811, AF033096, X71132, X69525. U64599, X99055, Z26252, U18917, U19886, AB011020, U48364, AF001549, X03234, J00184. Y12573, U48363, Z84721, U25973, AA179517, W96224, AA724586, AA536163, AA976337. AA194270, AA279466, AA776726, AA483454, AI040976, AA431450, AA970887, AA877479. 15 AA894770, AI000871, AA431579, W95840, AA725824, W68289, W96319, AA179564 AA948024, T83956, AA688086, AA478185, F21973, AA858279, AA478027, AA366735. N88601, N55698, N88782, AA096066, AA095641, N84829, H58760, AA471338, N89520 N84830, N83991, AA247964, N83168, N84048, AA096046, N84718, N86694, AA247827,

- N84712, N83992, N83993, N84855, N88518, AA093224, N87989, AA095359, N87898. AA093861, AA089553, N88496, N56555, N84828, N56118, AA093897, AA089554, N84016 AA247965, AA215911, AA215908, N84723, N55658, AA094237, N84602, N84733, N84764. N84561, N84721, N83229, N55681, N55684, N84873, N55669, N84874, N55641, N84734, N84736, N85900, AA249064, N84781, AA095435, AA249712, N88018, AA093577. AA092086, N85031, AA095475, AA093313, AA095511, N89307, N85930, N84740
- AA434697, AA237234, W62735, AA637114, AA033103, AA790334, AA833155, AA403954, AA466835, W84285, AA637841, AA237989, AA289419, AA710335, AA691719, W89930, AA616952, AA212922, AA571119, AA098011, AA896312, AA606285, AA285913. AA218382, AA822840, AA940345, AA259992, AA821517, AA470225, AA521758 AA607378, AA914347, AA108575, AA509884, AA162724, AA015378, AA161959.
- AA103752, AA794191, AA208274, AA798889, W33307, AA016594, AA387823, AA945793, AA997649, AA964381, AA944107, AF041408, AA933116, T14972, AA754150, AA996765, W43831, AA257763, AA842533, R62058, AA848534, AA963515, AA752422, AA848535. AA660164, AA754139, AA660165, AA471470, AA675874, AI043379, AA842214, L19203. AA161703, AA161711, AA754373, AA754181, AA180582, AA754148, AA754159,
- AA842305, AA180607, AA933288, H07815, AA791314, T00021, R47112, H07828. AA555441, AI011717, AA752718, AA109452, AA257280, AA892675, AA754224, AA406790, AA509100, AA109326, N94683, N82177, AA842503, AA842176, AI010119, W91818. H07423, AA842216, C30674, AA685067, AA509309, AA509163, D43402, AI012505, F22972, H07842, AA433419, AA109292, C07229, W51723.

40

SEQ ID NO. 97:

AF053974, X96705, U22237, AC004260, Z66517, Z77134, U32723, U35657, AC002080. 45 J04355, U82202, Z35601, K01711, AL022598, M20865, AA374801, AA306449, N48227, H64263, T51666, R52634, AA318276, AA706990, AA551148, AI028232, AA581365. AA694052, W87336, W47503, AA554571, AA607765, AA154690, AA924880, D23509. AA067503.

45

SEO ID NO. 99:

Z22176, AL010226, U67566, Z96798, U09956, X56775, Z97339, Z70206, X56260, U67594, AF052832, X52572, Z98598, AC002294, U41554, U66261, M97618, U00149, AC004745, AC004255, Z72888, Z72846, D90759, J03297, M36386, Z65781, U49960, AC003096, AC005238, M20147, AF014960, X07289, M80571, Z71527, Z68277, Z81066, D90852, Z68105, Z99165, U07065, Z92540, AC002432, AC002351, D14533, AL021635, U14566, Y00067, Z73971, U53502, L35848, U10343, U59711, U33934, U28487, M76702, M10066, Z65782, U86962, D85428, U33933, AE000221, AC004135, U62293, X64461, U15591.

- D90758, AA047345, C75194, AA152132, T39704, AA404974, AA313387, AA377300, AA773368, AA362228, AA047344, AA247511, T40740, W38779, AI050068, R13549, AA346462, N50523, W27312, AA551073, AA306922, AA034218, AA496544, AA975271, AA033534, AA155696, AA423826, AA989046, AA115605, AI024233, AA620978, AI033843, AA115471, AA115213, AA134882, AA559320, AA610042, AA135338, AA248692, R70913, AI022302, AA046587, AA307285, AA781036, AA692567, AA681336, AA549004, AA653487, AA177677, AA915150, AA153059, W41094, AA445202, AA498066, AA409473, AA177599.
- AA562914, AA266872, AA656061, AA896022, AA117475, AA738723, C77886, X61844, AA674119, A1045314, X91731, C71913, T02509, AA925983, T03973, T02602, AA753121, D48485, A1009917, D24757, D24759, C29123, C28355, Al011347, AA695453, C70381, 20 H36637, C23428, C62223, AA696075, AT000376, AA264575, C63593, AA440992, C48257, AA264245, C23391, AA392990, AA949994, R90723, D47512, C23189, C28792, AA264789, C23091, C23221, C23281, C23486, AA651405, AA791285, L47867, A1030465, W23399, AA802503, C23380.

SEQ ID NO. 101:

L41679, AE000664, X70810, M97702, AF007261, AC004052, Z70040, U95973, AB006205, U18340, AC004281, M57977, AF015262, X78823, Z48930, U92453, AF047660, U45982, 30 Z22178, U18338, Z83107, U18337, Z69907, U84551, Z81369, AC004136, U12769, D16355, U06755, AA353592, AI017212, Z20462, AA084913, AA322347, H67555, H15054, R60319, AA782925, AA113206, R41988, H09807, H68176, AA325657, AA635184, W00737, R52825, R44297, Z41301, R34253, AA351933, F05557, AA382460, AA861207, AA688169, AA813930, H97901, AA504297, AA907592, C175555, AA437174, R80561, AA488383, AA287335, AA297740, AA489714, AA722140, AF017648, AA804212, AI015606, AI005291, AA913492, R75960, AA343951, AA334986, AA292286, AA258087, AA025640, R66450, AA843675, AA865754, AA527317, AA232238, N30011, R73028, H27866, H12877, R72656, A99992, AA481805, AA138080, AA615376, AA265134, AA140400, AA608248, AI047363, AA146296.

AA930813, AA575341, AA388659, AA462933, AA958463, AA656418, AA589980,
AA869843, AA087361, AA792077, AI006571, AI021357, AA690956, AA895651, AA110646,
AI046734, AA655927, AA415593, AA200384, AA162290, AA549901, F15585, AA955266,
D33207, AA540536, F14406, R03451, AA850731, W06651, D33188, C92137, N97695,
D34445, AI029865, AI010659, AA926162, AI045900, AA859190, D32367, AI043939,
AI028821.

SEQ ID NO. 103:

S78798, AF039698, AF045432, U65376, U48696, U39066, L07590, U66300, L12146,

- AF033565, U52868, Z97178, S83098, U44386, AF027174, U37573, Z49980, AF033096, AF033097, AJ001103, U34048, G29058, G29060, U41811, X99051, X99055, U48697, D86970, X65215, Z35641, L12469, X80164, Y12256, S56922, AA442655, AA768893, AA779510, AA632212, W88679, T52585, AA132101, N86694, AA093224, N83993, N84718, N55681,
- 5 N83992, AA471338, AA247827, N56555, N84712, AA093861, N84048, N89520, AA094237, N83991, N84830, AA096066, N88496, N84721, N87989, N88601, AA089553, H58760, AA215911, AA089554, N56118, N83168, N84855, AA247964, N84016, N55698, N88782, AA095641, N84602, N84828, N84733, AA096046, N84723, N87898, N55684, N84561, AA095359, N84874, N85900, AA093897, N88518, N84764, N84722, N55669, N55641,
- 10 AA249064, AA248551, N84736, AA215908, N55658, N85031, N84873, N84829, N84711, N84734, N84735, N84663, N56179, N84720, N55697, AA090034, AA248055, AA214702, N85930, N84562, N55639, AA247965, N87317, N55653, AA263076, N84601, N86441, AA248540, AA210625, N55717, H54881, AA471140, N84665, N83229, N84714, AA216240, AA285245, N84921, AA095435, N86439, AA093577, N55721, AA247828, W64759, W85389,
- AA170187, AA017792, AA020604, AA733792, AA208274, AA755285, AA717172, AA866729, AA286214, W10227, AA166319, AA217994, AF041408, AA933116, AA933363, D21922, D22036, W99281, AI010427, AI014137, AA957307, AA866225, AI012477, AI008733, AA996445, AA925786, AA818841, AA924371, AA849942, AA925635, AA999172, AI011706, AA955950, AA96429, AA957899, AI014042, AI010357, AI012277, AA946050.
- 20 AA997129, AA998014, AA899344, AI009863, AI010298, AA859978, AI045178, AI012192, AA956403, AA998620, AI009737, AA958000, AA859266, AA964570, AA944452, AI013760, AI043606, AI045050, AI010101, R46936, AA900052, AA900076, AI008975, AI045193, AI012602, AA899521, AI009352, AA946359, AI009797, AI009148, N99339, AI030877, AA012039, AA754231, AA817994, AA859429, AA875121, AA900424, AA924214,
- 25 AA945660, AA964165, AI009800, AA800835, AA858619, AA924931, AA933168, AA945755, AA946378, AA956107, AA957339, AA998987, AI013389, AI043647, AI043787, AI045635, AA660039, AA754049, AA963340, AI007843, AI011499, AI012461, AI044977, AA924075, AI044978, AI045381, AI045262, AA842888, AA901302, AI009757.

SEQ ID NO. 105:

DOLL

1000

,D

30

- U23946, U73168, D50912, U35373, D83948, U50839, AF042857, AF069517, U97008, Z68013, Y08502, U76753, Z28389, AA570533, N23866, AI049957, AA889659, A699426, AA782487, AA767408, N29616, N41616, T03540, AA436772, AA194028, AA724105, AA648939, AA904276, AA907774, AA192891, AA349791, AA677951, AA593262, D19618, AA437179, F09819, AA659891, AA456007, AA165466, AA961715, AA907700, Z40342, P465118
- F09819, AA659891, AA456007, AA165466, AA961715, AA907700, Z40342, R45218, AA975284, AA563802, AA888076, AA670261, T31362, AA150773, AA994080, W73892, W76177, T33106, R45829, R37062, AA421795, R42942, AA337186, AA194215, AA192645, T10051, AA877988, AA150882, AA782825, R60960, AA746150, T10050, AA953465.
- AA249486, AA369780, AA367141, AA917711, AA165366, AI016061, T32698, AA382385, R21564, N74644, AA383548, AA773506, AA361795, AA359822, R24955, Z19624, AA129882, N31418, AA136550, T50042, AA143444, AA599498, AA374055, AA143444, H19190, R52382, AA761351, AA459583, AA806592, Z43337, R60959, AA890595, H68058.
- 45 H91241, AA442117, AA808896, T52417, W95685, AA151139, T33151, AA610445, AA628542, AA422032, AA348728, R63854, AA574979, AA139814, AA684206, AA104614, AA210358, W98842, AA041751, AA068223, AA052848, W58896, AA145278, AA217077, AA792797, AA269756, AA183101, AA023084, AA423737, AA822385, W91432, AA145277, AA681513, AA793915, AA245973, AA790363, AA571781, AA412872, AA254535,

AA792696, AA792697, AA864105, AA549397, AA607276, AA823956, AA790829, AA189573, AA510602, AA420413, AA763341, AA727265, AA718492, AA718494, W11974, AA274040, AA832663, W56982, AA691932, AA444814, C80712, H34148, AI010131, AA859880, AI012636, N60102, N96138, AA605553, W43621, AA528839, R95634, AA525605, N82554, C56074, H31400, D35020, AA528851, C23491, T14457, AA800738

SEQ ID NO. 107:

U47092.

10

35

40

AF040707, AF040708, AC002481, Z66370, Z83744, Z81141, AD000812, AC004609, AC002985, AC004217, AC004448, AC004128, L81694, L78810, Y09450, U63963, AL023893, AC004021, AF061032, Z68193, U36478, AC000056, X75891, Y13622, Z36000, AC004030, AC003658, Z70227, S44029, AC002558, L76523, AC002126, AC004388, S51944, AP000045. 15 AC004216, AC004552, AF053630, AC002477, U66083, U59962, U26032, X91144, Y11740. AE001001, AA399402, AA447620, AA448454, AA069925, AA448020, AA422152. AA233630, AI039091, AA694501, AA594398, AA009713, AA156783, AA599751, AA398362, AA070017, H80269, AA938654, C02912, H80365, AA947274, AI003286, AA350419, H09156, W23160, AA298504, R40317, AA827591, AA809864, AA297589, AA809865, AA991627. AA297851, R44669, AA460451, AA082600, AA352547, AA338738, AA463393, AA555202. AA325687, R41569, R13235, H09213, AA100151, AA635653, AA302916, R19419, C03526. AA009823, AA156852, R15147, R36750, AA666086, AA340305, AA471272, AA091173. C03440, AA350420, AA421315, AA628294, AA232327, D11859, AA628519, AA699311. AA788699, R02062, H77404, AA082714, N51039, AA278486, AA348125, AA922129, 25 AA976211, R11648, W94679, AA046821, AI005082, AA094299, T16281, T71616, W76189. W79649, AA046804, AA426618, AA452166, H09325, AA570351, T97619, H82895, AA485716, AA426080, AA541541, AA657945, AA603229, AA908744, H03358, AA424532. AA770584, AA782577, AA832194, AI037102, AA764527, W64225, AA163573, AA073941, AA619080, AA709972, W98890, W59419, AA116886, AA199485, AA754894, W70378,

SEO ID NO. 109:

AA964367.

M86752, AF039202, Y15068, U27830, X79770, U89984, AP000020, AL008628, U72207, D17760, U19927, U34921, U12707, M62740, J03071, AF016422.

AA797181, AA002597, AA839076, AA387015, AA726154, AA718439, AA980485, AA270671, H35002, H35204, AA686027, AI012778, AA686254, AA684618, AA686253, AI029875, AA799580, AI045682, AI029738, AA840778, AA753356, AA697668, AA979757.

SEQ ID NO. 111:

U64317, L43821, AF009366, D29766, U48853, U28151, Z66513, U38481, M69181, U36909, U58513.

SEQ ID NO. 113:

D13866, D14705, L23805, U03100, X59990, D90362, Z37994.

SEQ ID NO. 115:

5

10

15

20

25

30

35

AF011793, AJ001309, Y13350, U95727, AC002087, AC002485.

SEQ ID NO. 117:

D13627, Z37164, D42052, Z37163, M97562, Z22289.

SEQ ID NO. 119:

Y08915, AF000577, L31652, AJ223156.

SEQ ID NO. 121:

X91141, X77723, D86066, U70777, D85844, AB001750, Y08613, D38038.

SEQ ID NO. 123:

U27462, AB009517, U10399, AA972362, H16641, AA375684, AA336508, AA393076, AA211450, AA312542, AA412102, H81084, AA807300, AA517135, AA035926, AA794287, AA163888, W75621, AA521882, C94187, AA445895, AA842425, AA111773, AA051908, H35839, AA802415, D48028, A1010004, D36325, D48057, W66028, AA788342.

SEQ ID NO. 125:

U63333, AF035625, AF055320, AF032984.

SEO ID NO. 127:

D49677, D49676, U51224, D45205, AC004106, D26474, S69507, D17407, Z74476, Z26635, 40 Z99279, AC000056, M83200, AB009480, X86100, Y13901, X67611, X56007, U62631, X59496, Z72646, AC005092, Z98887, U19755, U41011, U63630, D10061, L20632, U57971, X94106, Z94721, U60414, M13101, X61298, X53581, U90211, X73124, U45980, U41411, AB000407, Z97355, AA601026, AA669459, N80309, AA569819, AA430135, AA723697, T67521, T67543, AA845804, AA320008, AA377829, AA028151, AA028127, AA814970, AA814962, T69519, AA331011, N78889, AA507133, AA630855, W27716, A1003534, AA600133, AA807323, AA078585, AA326345, AA329479, AA904199, AA824460, AA424001, AA452591, AA920561, W30240, W11838, AA221247, AA050756, W20707, AA199064, AA771282, Z74661, AA545349, AA422535, AA763112, AA709977

SEO ID NO. 129:

D10630, U41671, X63747, Z98745, AB007886, Z11773, AL021997, X84801, U78722, AL022393, Z55026, AC004232, D88827, U31248, AC004522, U88079, U57796, AB011129, AF017433, AJ003147, U78142, AC003966, AF011573, Z21707, AF031657, U88080, U62392, U88081, X51760, X65230, X12592, M36514, L32162, U69645, L26335, X07290, L35269. X07289, L41669, M67509, D45210, D10628, L75847, L32163, U71601, U46186, X82126, X65232, X82125, Z30174, X16281, AC005261, X78933, M29580, Y00850, M88372, X77744, X52356, AF038179, M15709, M99593, X78924, U71599, U41164, X65231, U09413, L28167, U07861, D50419, X78928, X17617, M36146, U09852, X60152, X78927, M29581, AF027146, M96548, M88370, U95044, AF020591, X78925, M88360, X16282, X06021, U66561, U65897, X12593, X89264, X64413, X52533, U71600, AF025771, AF025770, U95992, U95991, U75454, L77247, X55126, AA613873, AA724783, W89121, AA873391, AA285170, W30901, AA620620, AI052471, N59279, W32455, W88914, W02805, N49069, AA011701, AA495857, AA291157, H64286, W02140, AA151132, AA424817, AA702978, F10244, AA011595, AA284023, AA370051, H64287, N77050, R08028, AA076722, R08076, AA077262, W26330, AA314608, AA226724, AA996155, AA910691, N29000, T46864, W52139, H53499. AA400924, AA453245, AA443452, F08086, AA626790, H41302, W58016, T08471, AA631964, W37662, AA776714, AI014264, AA625515, W21271, AA481221, AA115318. W44916, F06540, AA683109, AA334780, R57599, H54888, H54887, N83314, H40464, 20 AA635153, M78146, R20489, AA402531, AA457311, R54170, F06238, H17015, AA701913, H05892, AA682749, AA974380, T77293, F06725, F06163, AA005274, H15716, AA324611, N49093, AA164237, AA535743, AA714166, W26721, AA018889, AA005168, Z21091, AA485008, AA088626, R98365, AA984447, H78732, H78719, AA130717, AA903551, AA930937, AA244891, AA161830, AI036871, AA144413, AA475739, AA756477, AA457998, AA739462, AA272875, W12178, AA140301, W62054, AA562594, AA118740, AA985880, AA017814, AA797641, W14162, AA261676, AA017765, AI036166, AA111087, W62216, W77264, AA021856, AA017906, AA155283, AA023905, W71471, AA021791, AA021779, AA023884, W14525, AA030180, W36989, AA021734, AA510240, W47789, AA240161, AA871668, AA260250, AA064077, AA036225, W75531, AA798457, AI005795, AA499468. AA799050, AA244987, AA044497, AA014148, W66907, W59409, AA615956, AA110661, AA138214, AA738624, AA184558, AA184177, AA137979, W10514, AA546639, AA536874, AA415708, AA415783, AA799270, AA726681, AA611109, AA403675, AA880983, AA611311, AA537547, AA537582, AA476109, AA064411, AI043118, AA435439, AA240059, AA289228, AA197831, AA119538, AA444998, AA153300, AA896035, AA940187, AA427224, AA920304, AA555714, AA266357, AA543703, AA416019, AA790674, AA123106, AA386765, AI047413, AA432576, AA124696, H34137, AI030812, H31100,

SEQ ID NO. 131:

40

AB002374, X51966, AL021367, AF036702, U88822, AF045642, U55815, AC004518, L13696, AL021889, U75395, AC002554, AC003103, X90386, X04981, U58334.

C82417, AA800027, C83273, AA800810, AI030120, H34068.

AA494741, AI012567, AA817763, AA800215, AA800306, AA892061, AA850654, AI011599,

SEQ ID NO. 133:

U48587, U68267, AF001906, AF033856, M33336, U73177, J03685, AC004743, AC004539, Z60442, N53159, N75331, A1042621, AA435593, AA608757, AA076290, AA662552, AA213762, AA630025, R57980, N24985, AA813323, H21646, H05642, AA359799, AA191039, AA318867, H15234, AA323419, N27160, AA636826, AA656934, AA726211.

- 5 AA619507, AA792581, W59642, AA035921, AA637995, AA667370, AA5921370, AA615370, AA7914526, AA386742, AA919409, A1046649, W35790, AA016357, W97992, AA656026, AA414710, A1006426, AA673795, AA239695, AA285593, AA615757, AA038932, AA073580, AA103792, AA220731, C85146, AA867112, AA028705, AA118743, A1005830.
- AA073580, AA103792, AA220731, C85146, AA867112, AA028705, AA118743, AI005830,

 AA874206, AA451006, AA667719, AA637623, AA492608, AI048487, AA189854, AA116581,
 AA096759, R04321, R04399, Z48427, R04620, R04065, R04404, R04422, R03209, C51162,
 C44210, R05229, C49234, R03208, R04273, D75630, D75447, D75141, D74833, D74636,
 D74299, D70237, R05254, C42102, AA658642, AA685519, AA799735, C93660, AA685980,
 AA750619.

SEO ID NO. 135:

COLESCE

AC005175, L12168, M98474, U94696, M88485, Z95972, Z81557, S54909, U59831, AB002387, U59832, AC004221, AC003993, AA505656, A1004052, AA975150, AA904315, R39951, AA908198, AA348001, AA348002, R39437, R39435, D21034, AA365146, AA813999, F12674, AA226122, T50818, AA143492, AA337395, AA003016, AA475640, W78672, AA517530, W45934, AA915424, W54264, AA168145, W11712, D34652, U92753, Z84127, U92730, AA438286, AA978864, AA941236, F14527, D47303, D15953, AA202003, AA979012, AA440964, AA736036, AA246888, AA940864.

SEQ ID NO. 137:

- AF064604, L63543, AE000647, AF064804, AA443401, AA334624, H69413, H69440, H69851, AA167818, AA830102, N64831, AA947764, AA453748, AA453830, R52194, T30970, AA903211, T32140, T30969, W05727, AA024651, C18655, AA386236, T69012, AA442992, AA452775, AA292522, AA223531, AA221067, AA004165, AA53827, AA676726, AA104327, AA874150, AA450950, AA692789, AA798137, AA119093, AA240418,
 AA542585, AA520648, AA519835, A1045289, AA520246, AA849945, T75681, AA520090.
- 35 AA542585, AA520648, AA519835, AI045289, AA520246, AA849945, T75681, AA520090, AA651385, Z25578, AA585901, AA395446, C90090, AA713116, AA851675.

SEQ ID NO. 139:

40
M24603, X02596, Y00661, M15025, X06418, U07000, X52829, M19730, M30829, X52831, M30832, X14676, X52828, X52830, S72479, L02935, M64437, M17542, L19704, U01147, X07537, X14677, X14675, M17541, M17543, M19695, X76485, AF023460, X89600, U19759, A7039083, X71790, AC004679, AC002076, AF035456, M99565, Z72005, Z79997, AL021154, Z98259, AC003108, L13706, AF018254, M69197, U67228, Z75887, U14661, M84472, AC005200, AC001228, AC004761, Z95124, AC002540, Z79699, AE000926, U43572, U51281, D82351, AB013379, U34879, AC002425, AC004598, AA338585, AA333142, AA126116, H55543, H55721, R54267, H55614, H55699, H55545, AA744741, AA772917, H29052, AA573543, T16608, AA773472, AA775416, AA601919, AA470534, AA351521,

DOUGEDES CEET

25

40

10

AI015318, AA351163, AA486365, AA470985, AA565376, AA344993, R92629, AA553555,

AA740903, AA090392, H94289, AA457592, AI033503, T69709, R94066, AA040853, AA065296, AA349058, AA703759, T05287, H86075, AA043080, AA669995, AA737864, AA726753

5 AA727154, AA546638, AA222375, AA671227, AA032828, W14856, W33789, AA874531, AA982359, AA965843, AA965737, AA800560, AI035042, AA941796, AA390686, AA735566. AA802030, C74658, AA246925, AA803435, C27952, AA944566, AA817514, C83561 AA978443, C24959, C82705, C72516, H34014, AA712916, AA820781, D21893, D15866.

SEO ID NO. 141:

S45630, AF007162, X95383, AF029793, M55534, X60351, S77138, S77142, S74229, X60352. M63170, M24906, M28638, J03849, M12016, M73741, U04320, M12014, M24092, L08078 S53164, U26661, M12015, M25770, U16124, X87114, D29960, X14789, X85205, M17247. U05569, U66584, M26142, U47921, U47922, V01219, X95382, AP000007, AE000869. AB009529. AF062537, D10457, S37449, X59541, AA742442, AA704135, AA211774, N35834. AA482745, AA211607, N28898.

SEQ ID NO. 143:

U78082, L78810, U14573, AC004068, U07561, M98511, AC004673, AA613346, AA953216. AA305926, H92800, R98218, AA629543, AA297666, AA302982, AA429481, AA126005 AA837225, AA856961, AA946848, F13749, AA847704, AA833896, AA621381, AA833875 AA459962, H22141, N73060, AA491955, H28477, AA224463, AA708753, AA152253. AI028510, AA483606, AA992126, T54783, AA715075, AA568204, AA715173, N64587. AA570740, AA984258, AA904211, H94979, AA085410, AA599352, AA488620, AA574442, AI049845, AA593471, AA393830, AA610509, AA297145, AA113272, AA835889, AA655005, AA689351, R93919, AA613761, AA550989, AA303054, H07953, AA713815, AA827490. AA865262, AA461308, H73550, AA657835, AA362349, H82679, AA378682, AA577755 AA663472, AA490602, AA857673, AA347114, AI049630, AA086150, AI017251, AA877992 AA084609, AI050760, AA808998, AA503258, AA613138, AA603156, AA513293, R97934. AA610233, AA654874, AA501867, AA604831, N22058, AA492114, T50676, AA757426. 35 AA584482, AA789192, AI004591, T50694, AA862227, AA594145, AA728911, AA847499. AA159978, AA534204.

SEO ID NO. 145:

Z69030, L42375, U37352, D26445, U38192, U38191, U37770, U38190, U37353, U59418, L76702.

45 SEO ID NO. 147:

> L07872, L34544, L34543, X17459, S63463, M81871, L08904, U60093, U60094, L07873, L07874

20

40

45

SEQ ID NO. 149:

U07158, X85784, AJ000541, U76832, L20821, AC003089, AC004504, AF049236, L40609, AF053765, L14677, Z94056, Z18277, AE001073, U85969, X79283, AJ223473, AA632339, 5 AA732931, AA610556, AA973899, AA598896, AA631553, AA826535, AI000209, AA290836, AA642711, AA085920, W22275, D20744, UMGS017, AA487868, AA487869, AA085919, 682 AA833281, AA619252, C77541, AA691960, AA763615, AA164051, AA259589, AA0660475, AA254185, AA666705, AA272597, AA152985, AI011416, AA850008, H33152, AA941811.

10 SEQ ID NO. 151:

M13451, X03445, X03444, M13452, X66870, X76297, X14170, X99257, D14850, D13181, L12399.

SEQ ID NO. 153:

U28918, U17714, X82021, Z98048, D17265, D17092, Z82022, L04270.

SEQ ID NO. 155:

X54859, Z86000, AC003043, X77738, X77737, L35930, AC003084, AC000111, M89651, AP000031, U67588, X03991, AC004660, AL010261, V01515, M86251, L29376, Z71417, L78442, U00921, AC004692, AC003698, AE000742, Z49128, Z73417, Z71418, AA424638, AA442084, AA805748, AA835489, AA713576, AA502343, AA765949, AA812332, AA831755, AA417718, AA776946, AA152295, AA731660, R48791, AA150237, N51650, N52616, N52586, AA533556, AA305755, AA760877, AA729913, AA731659, AA910594, AA904521, AA372550, R48898, N50390, R08712, H83343, AA417867, AA090407, AA009846, AA927286, AA678135, AI03148, AI041408, AA235113, AA398662, M62215, W27276, AA885767, AA460155, AA742433, R19908, AA040696, AA555240, AA03160, AA292844, R53160, AA536080, N70013, N35921, N70096, AA277029, AA560610, AI046716, AA237153, W15784, AA547132, AA231089, AA170968, D46090, C61892, C64408, D34777, D35175, D35914, D37381, AA559708, D37143, C60784, AI008855, AI021808, AI009216, D68214, AA220863, D70434.

SEO ID NO. 157:

U43195, U58512, U61266, D89493, U36909.

SEQ ID NO. 159:

AF069442, AF001295, M13820, M10081, AB010077, AA491075, AA446881, AA588390, AA479958, N20112, R86178, R97894, T64868, W68074, AA365195, AA928749, A1037069, AA882303, AA791693, AA82133, AI037224, AA404165, AI036575, AA499662, AA864136, AA561223, AA183703, AA647218, AA792208, W48100, D40621, AI2225487, AA294595,

25

35

WO 99/04265 PCT/US98/14679

02866, H35041, AA944944, AA597316, D26977, D68334, AA685934, W88345, AA964819.

SEO ID NO. 161:

K01546, AE000468, X95549, AC004014, Z81584, L19201, X94244, X06932, U39479, X13301, AC000386, U80847, X86737, U39478, AA883211, AA610050, AA774254, AA280736, AA926725, AA459300, N55370, AA233666, H90342, T66839, H91250, AA856968, R92873, AI034196, AI014787, AA910410, AA088535, AA230765, AA467238,
 AA397279, AA420226, AA396042, AA200070, AA165873, AA762534, AA667133, AA065429, AA185092, AA572057, AA111387, AA175824, AA881071, AA571692, AA104279, AA733670, AI008804, D86670, C67200, D41938, AA141467, D35894, AI001643, AA957220, T37355, T18792, D47809, W21723, AA898504, AA951903, AA661025, AA949796, AA990685, AA661449, AA948837, R04787, D16046, AA439636, AA246769, BA978829, D43523, T02021, AA803212, D22651, AA201227, AA694728, AA891643, D23309, AA820831, D41871, W21774, D16065.

SEQ ID NO. 163:

X15183, AF028832, D87666, I04633, L33676, X07270, U94395, M27024, M30627, X16857, X07265, M36830, M30626, AA669137, AA725103, AA890496, AA314095, AA554815, AA313331, AA730100, AA214035, AA876412, AA121630, AA314010, AA927532, AA968674, AA679253, N66271, AA558907, AA309988, AA587079, AA075436, AA160964, AA205657, AA214083, AA130903, AA917032, AA149623, AA857523, AA889843, AA305037, AA491055, W73240, AA255644, W73295, AA765431, AA178947, N66409, AA074895, AA306976, AA075052, AA075387, AA130892, AA857443, AA405942, AA629891, AA152004, AA129550, W56527, AA513807, AA703828, AA223171, C75280, AA889155, AA854676, AA773063, AA774999, AA152392, AA307057, AA316954, AA657352, AA522607, AA188113, AA026444, A1003623, AA312717, AA312400, T64299, AA178992, AA228992, A1042136, AA457613, A1032857, AA164461, AA625127, AA807763, AA130815, AA054695, AA937097, W93534, N67875, AA526896, W52802, AA527942, N34251, W28646, AA668543, AA496091, W52511, AA070581, AA306826, AA120908, AA699607, AA086423, N72134, AA630369, AA564649, AA046806, AA666249, AA306893, AA225404, AA127417, AA854951.

SEQ ID NO. 165:

- M23885, AF047868, AF017732, AB005249, Z83229, AF026483, U97194, Z67884, Z67881, X13481, X07651, AC001226, AC002542, AB002307, AA984684, AA017533, AA306600, AA261957, F08123, R17885, AA282208, H85861, H85836, AA593150, H87276, AA057384, AA243602, AA013399, AA374926, AA721341, R88896, AA021538, AA101740, AA375314, AA090398, H86058, AA984556, AA215816, AA092672, AA034243, AA328017, F11174,
 AA261777, N40306, W21253, R02386, AA349225, AI038487, H98027, AA385878,
- 43 AA261777, 1940306, W21233, R02366, AA349223, Al038467, 1750027, AA368883, 373 AA174568, AA790426, AA423321, AA647673, AA109549, AA396473, W16215, AA105538, AA061105, AA066766, AA462773, AA555644, AA499452, AA389523, AA245036, AA475340, AA880992, AA198965, W11981, AA509705, AA237414, AA646230, AA673569,

SEO ID NO. 167:

Y11251, AF030234, AF043945, L40407.

SEQ ID NO. 169:

10

20

35

U33822, X61838, AA572230, AA589570, AA929790, AA104830, C81582, AA271190, AA290278, AA543616, AI043207, AA107832, AA958460, AI020992, AA795905, AA277468, AA475069, AA111610, AA389139, AA154163.

15 SEO ID NO. 170:

D32050, D16969, AC004423, S81497.

SEQ ID NO. 172:

D86982, L07131, M14544, AA296228, AA318436, AA296234, H88394, W26642, AF038251, AA394101, N35855, N56791, N35444, AA147382, AA647547, AA939939, AA895989, AA122437, AA277698, W75741, AI036117, AA980469, AA033178, AI006694, AA980625, AA033190, AA175922, AA172918, AA895209, AA028700, AA416048, AA175247, AA217057, AI045760, R64866, D40836, D41873, AA509279, D40089, AA114361, AA751642, AA848690, AA800525, AA802510, C24001, AA841755, AA882663, D40069, AA433358, D40199, AA958134, AA072494, AI008727, AA618978, AA848687, C21884, AA113662, AA945653, AA660093, C58446, AA908068, AA532100, AA264560, AA426658, AA097169, AA751535.

SEQ ID NO. 174:

Z81364, AC003033, AE000665, AA570483, AA532739, AA526905, AA725306, AA134415, AA651838, AA481316, AA600310, C04532, AA004615, H20713, AA913640.

40 SEQ ID NO: 176

M14695, X02469, X60012, M14694, X01405, K03199, X60015, X60016, X60011, X60018, X60019, X60014, X60013, X60020, AF021816, X16384, L20442, U48957, U48956, X60010, S83123, X90592, U74488, D49825, X81704, X81705, U43902, AJ001022, D26608, D16460, L37107, AF060514, S77819, X13058, D86070, U50395, U07182, U90328, Y08900, M75144, Y08901, U74487, U48619, K01700, M13872, AF051368, U48616, U48618, X00741, M13874, M13873, X01237, U48617, M22887, X54156, U94788, M13115, U41451, U41452, X01236, K02110, U59757, M22895, M13118, U63714, M22888, M13116, M22894, M13117, U51857, U37120, U62133, U07020, X91793, L07907, U26741, U59758, S78456, L23634, U22145.

X00879, X00881, S77930, S78457, U66066, D63399, U44835, L07908, S57234, D63405, L27630, M22896, U07019, D63404, M13119, X13057, D63402, M75145, D63401, L12046, AA373960, H61357, AA358870, AA928725, H90357, AA302363, R94782, W24142, AA448185, AA004394, AA376121, AA151197, W76037, R82621, AA157426, AA343323, AA301677, AA002978, AA966981, AA839925, AA982800, AA030090, D77246, AA184043, AA142337, AA529242, AA874521, AA048636, AA168688, AA032325, AA881664, AA529082, AA874036, W06121, AA520602, R86591, AA848372, D37535, AA433405, C72790, A1009692, C25990, X91325, D71516.

10 SEO ID NO: 177

'n

X71973, AC004151, L24896, X82679, AF045769, AF045768, U37427, D87896, S80257, L12743, X76009, X76008, AF035264, AC004707, AA633971, AA588533, AA992915, AA399565, AA435883, AA454856, AA877822, AA780281, AA767205, AI016009, AI038211. AA417004, AA400522, AA676416, AA526712, AA431710, AA496292, AI041168, AA451858, AA709014, AA588291, AA758304, AA188597, AA149890, AA815107, AA670145, AA026421, AA468719, R67030, AI024175, AA719171, AA708025, W15350, AA431760, AA887242, AA888171, AA769788, AA948489, N54495, AA453278, AA887529, AI014760. AA287946, AA862377, H44827, W72726, N22715, AA662838, AA187825, AA780142, N70623, AA503741, AA024544, AI023537, AA834970, AA062885, AA991970, AA576623, AA722713, AI014758, AA765436, AA633498, AA507435, C01757, N70601, AA314727. R62311, AI004483, R81700, W60860, AA621104, H51422, N33007, AA046316, H20797, R70369, AA724141, AA694532, H20024, AA627821, AA448392, H93528, AI015880, AA453376, AA977808, AA576363, AA838346, N78626, AA648742, AA305364, H20123, AA024543, AA864931, AA946666, AA417190, W73759, AA815325, AA128171, AA809918. AI039304, AA718260, AA088979, AA403403, W85396, AA222552, AA839828, AA071896, AA109679, AA470211, AA219887, AA816136, W83835, AA064566, AA606943, AA034666, AA270485, AA457957, AA571899, AA050132, AA510431, AI020265, AA590096, W97284. AA691964, W78537, W08051, AA435081, AA020097, W15024, AA008493, AA208204, W53741, AA512604, AA049396, W64741, AA756852, AA048836, AA038639, W14765, W10901, AA920385, AA791715, AA647984, AA690893, W75172, AA184727, AA036383, AA275344, AA619559, AA059803, AA575700, AA967063, W83433, AA203908, AA959416. AA222749, W15727, AA684313, AA286343, AA145935, AA137494, AA272180, AA472719, AA208001, AI006169, AA240906, D19204, AA276329, W59005, AA445679, AA510539, AA222929, AA144725, AA413110, AA268012, AA492769, AA545011, AA204126, W17735. AA516923, AA270092, AA518734, AA475396, AA108883, AA014248, AA221781, AA051598, AA667607, AA048854, AA623999, AA397087, AI006246, AA122798, AA675710, AA462388, AA606840, AA516903, AA407638, AA222968, AA064375, C25916, AA941583,

SEQ ID NO: 178

45

Z50194, U92983, U44088, AC003101, X72892, AF035444, M32474, AF019953, AC001228, Y15443, AF001294, U12418, X06956, M31176, AF015277, AF002708, R43556, AA088367, AA313553, H92530, AA376262, T09403, AA814143, R75643, AA47905, AA773048, AA507143, AA402127, AA430292, AI015600, AA393069, AA463606, AA885498, AA460759,

C94734, AI011423, AA893085, AA964072, AA957524, AA963336, AA956783, AI014112,

AA894190, C20441, AA231739, D68624, AA964536, AT000114, D22968.

OSHESSES DECYDO

25

45

AA398766, R48359, AA426107, AA909990, AI017459, AA076224, N39533, AI026941, AA412699, AA292828, AI024759, AI016910, AA573306, R48386, AA065307, AA774549, AI016070, AA884918, AA431512, AA306051, AA476440, AA292924, AA621059, AA411830, AA405079, AA596171, AA989987, AA472637, AA690249, AA691927, AA792720.

- 5 AA637983, AA020137, AA097337, AA117759, W17615, AA285526, AA111347, AA208823, AA879750, AA413058, W33316, AA161891, W41259, AA511152, AA027481, AA020252, AA033106, AA965045, D41048, AI031042, D48020, AA925258, D40853, AA945674, C19585, AI013412, T15040, AA541011, AA990782, AA851306, AA540938, T23386, AA783863, AA979035, AA951002, AA438957, AA979006, AA978995, AA800046, AA556128, C27411,
- D15562, T20348, AA966363, AA949269, AA785774, AA728671, D16092, N37869, D48782.

SEQ ID NO: 179

Z50194, U44088, U92983, U12200, AC004147, X82200, Z81527, M63469, Z35494, AC003018, AL021408, M92281, AA576961, AA088194, AA258396, D79238, N27861, AA857168, N35619, N40634, N73008, N21585, AA332511, D56582, D12298, AA641278, Z21892, H92531, AA113084, N76094, N31261, AA227469, Al038845, AA520982, R16910, AA380178, AA238335, AA255056, AA981576, W35008, AA238181, AA739268, AA061742, W59335, AA049688, W64993, AA900759, A1009938, AA850887, AA525635, W59849, AA660463, AA841121, N96072, A1044112, C24662, C23675, AA924228, AA881227.

SEQ ID NO: 180

D87072, U52191, L25270, L29564, L29563, D83144, U73169, AC003036, AC003049, AC004149, Z67744, AC001224, AA215514, AA262849, AA44396, H22815, AA171842, W04162, AA682330, C18753, W01583, AA837306, AA348779, AA492008, AA639340, AA194216, AA371937, AA449692, H09426, AA782728, AA991707, AA085238, AA194029, T03226, AA867674, AA009101, AA726511, W90906, AA028401, W54470, AA266581, AA033314, W10534, AA475518, AA606629, AA616625, AA212796, AA184252, W53289, AA240033, AA238131, W98696, AA038374, AA286525, AA265063, AA212145, AA165741, AA146458, AA021970, AA870293, AA790962, AA770919, AA175098, AA080286, W87105, AA125485, AA870257, AA793909, AA673390, AA032500, AA055905, W84293, AA511672, W97898, AA881777, AA275041, AA184232, AA178368, W65008, AA734943, AA717871, AA220560, AA184416, AA163885, AA086951, AA032510, AA014341, AA637318, AA239778, AA237322, AA213090, W82825, W70807, AA542256, AA445570, AA444522, AA656978, AA162676, AA051548, AA038373, AA032527, AA840207, AA273185, AA260228, AA051553, W56956, D89319, A1045498, D24681, AA801346, AA962980,

 C71711, AA824977, D69290, AA264695, D68955, C74586, C72683, AA750613, C83111, AA568036, C82978.

SEQ ID NO: 181

U52191, D87072, AL022162, AL008710, Z83850, AF055066, AC004254, L25270, AC003013, U53141, AL021728, AC004997, M38703, AC004020, U91321, AP000041, Z69921, AC002551, D87016, X54171, AF055481, X83213, L05489, AC003018, AB009056, AC000069, L81890, AD000685, AC003031, AC003030, Z99715, AF043301, AE000664, AF007544, X15547,

- D86999, AL008633, AB010395, Z37999, AC002295, AC002397, AC003033, AL021878, X97651, AC003957, M33387, AP000053, AL009048, AC003046, M88481, Z74044, L81611, X75284, AA261777, AA864889, A1028372, AA465521, AA846126, AA262767, AA204697, AA215375, H51473, AA506924, AA502898, AA377435, AA113921, D62650, H22351, H51430, H22382, AA465101, C18637, W39589, AA327239, R40889, AA873226, AA460243, AA621037, H59359, AA725078, T74486, AA862185, H67186, AA830023, AA443869, AA828666, N38846, AA345908, AA525207, AA609559, AA628297, AA663165, T94643, R05610, R71812, D80739, AA677926, W04238, AA136929, AA137096, AA565152, N46909, N70293, W74325, H63794, N29751, N27675, Al036841, AA840246, AA833063, AA615467,
- N/0293, W/43-23, R63/34, Nc29/31, Nc2/073, R030641, AA469240, AA633005, AA613467,
 AA499981, W87950, AA968257, C81326, AA575315, AA198626, AA177237, W83702,
 AA032570, AA143960, W76885, C81402, AA624565, C81370, AA790518, AA462820,
 AA198544, AA619130, AA763304, AA408798, AA596445, AA388381, AA208825,
 AA465777, AA123453, AA163963, AA272421, AA387128, AA119389, AA004024,
 AA048596, AA178783, AA408740, AA462137, AA763879, AA104287, AA536743,
 AA189208, AA474607, AA119325, AA930111, AA591279, AA110900, AA511170, Z36370,
- AA915493, AA799054, C76955, AA475573, AA409880, AA608394, W40814, AA177344, AA139563, AA185921, AA103715, AA087674, W84211, AA413195, AA472014, AA718145, C76233, AA797276, W10301, AA982386, AA607099, AA123778, AA189429, W76777, AA408982, AA274777, C79658, AA543812, AA290119, R75266, AA060786, AA544015, AA537758, AA237310, R02919, AA858989, AA695540, AA848230, H74756, AA979699, AA03445, AA04747, AA57321, AA097784, T36746, A010428, A1044370, A1075012
- AA924645, AA964247, AA952521, AA997784, T36746, AI012428, AI045470, AI045012, AA963263, T02640, AA514153, AA685633, H35763, AA246073, AA875723, T38957, AA685944, T36529, AA951284, C93715, AA735681, T36773, AA926109, AA899894, D22301, T36428, T38528, AA550561, AA824716, AA818438, AA951260, AA698348, AA695342.

SEQ ID NO: 182

- U93574, Z84720, U93573, AC004389, AC003080, Z79699, Z83313, M22334, AC002379, Z81145, AC002523, AC004554, AC003015, U93572, AC000057, U09116, AC004769, AC005195, AL009173, Z82195, U93564, U93571, AC004216, U91324, AC004615, AC004513, Z68344, AC002556, Z97181, AC003085, AC003106, Z83827, AL009177, AC004048, L11910, U93563, U93566, AC002541, U93569, U63313, AF011889, AC002385, Z93403, AC002416, AL021069, AF051934, Z81001, Z81008, U93562, U93570, AC002076, AJ229042, AC004081, L19092, L19088, M22333, M80343, AC004673, M80340, AC000111, AC005248, AC004029, AC004103, AC004519, AC002461, U93567, U93565, AF003535, Z98754, U93568, AC003689, AC002106, AC003678, AL020991, Z92844, AC002083, AL008987, AC004142, AC004592, AF064865, AC004014, AL030998, AF036235, AC003090, AC002468, AC004381, AC002426,
- 40 AF064862, Z75741, AP000034, AC002980, AE000659, AC004694, AC003667, AC002381, Z73639, Z70042, AC004677, AD000091, Z68289, AA484141, AA164621, AA604538, AA481622, AA496279, AA984452, AA767964, AA984451, AA736469, AA515158, AA179891, N23655, AA613334, AA804967, AA167491, AA502863, AA736468, AA865990, AA557741, AA577777, AA434354, AA077547, R87956, AA130610, AA458671, AA515147,
- 45 AA249258, AA577804, AA370897, T51061, AA558463, AA564249, AA654792, AA937758, R14500, AA218754, AA808887, AA552844, AA610148, AA360863, AA131481, R14820, AA679387, AA604228, AA219167, AA528769, AA167264, AA211914, N44646, AA583372, AA332799, AA434071, AA768268, R67785, R11143, AA160931, AA492047, AA483907, AA018362, AA565136, AA148747, AA446799, T68944, AA622590, AA148366, AA321287,

DOUGEDED DEDY

AA641586, AA099918, AA323660, AA776660, T07174, AA126741, AA564135, C15230, T04929, AA812939, AA083809, AA825623, AA203220, AA381013, T79543, T06217, AA211212, AA622951, AA548059, AA737238, AA714581, N87426, T57704, R57964, AA776667. AA618000, T79544, AA085646, AA493616, AA334289, AA258289, AA151096,

5 AA827704, AA507666, AA549581, AA168679, AA185032, AA589251, AA981377, AA756236, AA240074, AA656748, AA542310, AA560477, AA675415, AA386570, W64580, AA674272, AA265898, AA260903, AA386558, AA666609, AA445433, AA681947, AA473373, AA098141, AA056918, Z97827, C06649, AA686628, AA817952.

10

SEQ ID NO: 183

AF027390, AC005191, AC004111, AL022394, AC002379, AC004748, AC005214, AC005164, AC004223, AC004536, Z81145, Z75896, AC003119, U91325, AC003051, AC003075,

- AC005246, AC000112, U73465, Z82204, AP000044, AC004768, AC004740, Z77723, AC004103, AD000091, AC002451, Z95437, AF055066, AC004519, AC000365, AC000120, Z97206, AC005138, AL009172, AC003091, Z68746, AL009173, AC004061, U69729, AC000357, Z97987, AC002429, AP000025, AC002385, AC005165, AC003667, AC002478, AC005166, Z73361, AC002524, AC004613, Z73986, AP000026, Z81311, AL021921, D87003, D87023, Z84720, AC003099, U96409, AC004746, AC003953, AC000402, AL008987, Z99128, U82828, AC003083, AC004388, AC0004746, AC002274, AC002523, AC003086, AF007262, AF017257, AC002080, AL022162, Z73496, AC002247, AC002523, AC003086, AF007262, AC004711, AC004503, AC004259, Z72001, Z74696, Z82216, AC002122, Z75741, AC004226, Z92543, Z81008, AC004800, AF003530, AF036235, Z97181, AC003100, AC002486, AC001608, AA902828, AA767353, AA659014, AA932087, AA085707, AA130476, W58442, AA778304, AA055654, AA176355, Al025602, H20876, AA663566, AA911409, AA129986, AA092309, AA846188, AA099788, AA854527, Al027421, AA889273, AA501873, AA811111, AA946637, W49501, AA081993, AA862481, AA130536, T16214, N64574, AA508451.
- N20521, N94967, C17235, N24958, AA493998, AA807609, AA961590, AA347740, AA709024, A1004961, AA779937, AA132536, N26540, F00936, N90055, AA493735, AA287329, AA718969, N76274, AA629837, AA128858, AA610791, Z36956, AA724159, AA157033, AA771711, AA771730, AA247446, W19865, T57073, W45291, AA168854, AA121916, AA581340, W85828, AA226414, T06365, N77920, AA342331, AA132716, AA953572, AA095194, T55378, AA559950, AA492106, R33901, AA070814, AA082150,
 - AA136576, AI034217, N79992, AA057222, T06932, AA506944, W58428, AA847621,
 AA091111, AA602447, AA782144, AI028382, H67259, AA460715, W04638, AA174085,
 AA169142, AA864823, AA136637, AA189081, AA745961, AA139949, AA445227,
 AA691595, AA500499, AA871750, AA670701, AA511259, AA140374, AA271307, C86865,
 AA118561, AA881298, AA110813, AA840390, AA212585, AA415184, AA511258.
- 40 AA666541, AA646864, AA710697, C77932, AA959489, AI046681, C80208, AA645685, C85334, AA265422, AA636275, AA288729, AA275057, AA500995, AA177980, AA458336, AA289940, AA415335, AA919414, AA982224, C76059, AA008758, AA124270, C06869, AA686909, AA686863, D42585, C92939, N61954, AA676153, H33166, AA892085, C06689, M79751, AA413311, AA817771, AI007834.

45

SEQ ID NO: 184

X03350, D00137, M24317, M21692, M25035, M12272, X04299, M12963, M12271, M81807,

X04350, X69799, M64864, M64865, L38286, X15451, D11064, L15703, AF040967, M24310. L38285, X15449, D11061, M24313, X15452, L38287, L15463, L15464, L15465, L15466 L15461, L15462, D11063, X15448, L38284, X15450, M11307, M15327, D11060, D11062, M29519, X72792, M32657, L38283, M24308, X15447, M37067, M22675, M18476, X76342. U09623, U07821, L47166, L33179, U20257, M22673, M18474, X98746, S78778, M22676, M18477, M32656, M59902, M22611, M22674, M37066, M18475, U16287, M32658, U76729 D11059, M84407, M68895, M37068, M29520, M29517, AJ002389, U16288, U48373, U48375 U48374, U48366, U48367, U48369, U48370, U48368, U48371, U48376, L15704, X90710. X54612, AJ002388, AF037560, AF037561, M15943, H47306, R97630, AA359078, T39956, T40080, W92014, R94266, T29660, T88752, H63211, AA007648, N58628, AA007475. AA663081, R59157, AA635750, N31819, AA418597, R26836, R63871, W16454, AA082493, H43616, AA333940, AA136854, AA224328, R32171, W70169, AA906156, R63943, T29861, AA970185, N99157, AA633611, R74522, AA418659, AA158647, T32414, AA947591. H41930, W71743, AA497928, AA882105, AI048277, AI043149, AA222882, AI047365, AA462832, AA475744, AI048891, AA445677, AI048278, AA238275, AA880474, AA920194, AA002848, AA087915, AI048182, AA572490, AA919920, AA674346, AA674324, AI048841. AA570972, AI048171, AA221141, AI047473, AA726292, AA089234, AA572562, AA575421. AA882120, AA920473, AA537724, AA537981, AA895827, AA521772, AA068475, AA163751, AA065690, AA089214, AA469859, AA895136, AA881990, AA763618, D85324, Z47709, W43337, Z17958, D40569, AI043714, AA849180, AA686762, D42196, C27176.

SEQ ID NO: 185

25

35

AF012072, Z34918, D12686, AF012088, L22090, AJ001046, AC002343, L05146, Y10804, AC003951, U66160, U64827, D90909, M21538, X84923, Z47812, AA191463, AA113265, AA632286, AA744722, AA743070, AA213861, AA609958, AA303191, W74161, W31772, AA488254, AA740463, AA455452, AA609344, H46968, AA618058, AA936118, AA806866, AA857299, AA447352, AA262384, F18818, W31201, AA161498, AA437201, AA078878, AA226209, AA722666, AA488220, AA226545, AA908395, AA512922, AA715375, H40724, N42261, AA576035, AA455451, AA171367, C77834, C80644, C80833, C78609, AA166246, AA607383, AA445222, AA899256, W36120, M79676, D36745, D28092, C60443, C65586, C62715, D71476, R05114, AA963758, C19374.

C28623, C21867, D15347, C26420, C26057, C27762, T38704, N82383, AA696634.

SEQ ID NO: 186

AF012072, U93694, U04282, Z83838, AJ229042, AF051934, Z74351, X84162, AC004238, 0 Z49209, Z74352, AF005675, AF005694, AF039057, AF005673, Z74072, U04280, AF005670, AF005679, Z48432, AF005682, AF005681, Z48717, Z74071, AF007943, AF014948, X56564, AF005679, AF005674, AF005683, AF005669, AC004414, AF005680, AE001040, Z68748, U53337, AF005672, AF005678, AF005684, U88166, Z75714, U62943, U41624, U29157, AC004016, U88173, AC002541, AF067619, Z99281, L12722, Z72831, AF029791, AB008681, SAF005685, L04132, L05514, AC002465, AF005671, BF0684, AA937078, AA457547, AI017135, H89366, AA903329, N34551, AA425182, N34541, H99291, D59286, D62357, D62145, AA665666, AI014367, N92469, W79550, N25822, AA457747, N66282, N29478, AA490854, AA526320, N75058, C21162, H89553, AA468635, AA609043, N44557, W05794, C15377, AI000693, H93075, AA705169, H06933, W88709, AI017605, R42683, T68350.

N95594, AA776703, AA147928, AA528395, AA083916, W25684, AA013334, AA172736, AA209088, AA163459, AA289612, AA982479, AA137939, C86651, AA254210, AA445488, R75462, AI019204, AA509441, AA002277, AA655398, AA571528, AA139333, AI021204, AA537146, AA451453, AA537280, AA271829, AA612432, AA276965, AA43546,

- 5 AA516947, D18988, AA762234, AA673901, W35735, AA623342, W41360, AA821737, C76479, AA759947, AA958949, AA960071, AA003958, AA063879, AA166186, AA397202, C76476, AA177406, AA615429, AA968368, AA197396, AA254248, AA216884, AA608321, AA646552, AA832682, AA959933, AA960279, AA690108, AA270884, AA794425, AA178520, C76477, AA02222, C76477, AA0222
- AA178520, C76467, AA032352, C76067, AA960423, AA959668, AA267923, C85907, AA589522, W53243, W16283, C79956, AA893170, A1009093, U30849, A1029468, AA964477, AA998982, AA819125, A1009853, A1008017, AA193834, AA944429, AA658642, AA874889, C10511, C83963, AA997836, A1044502, AA542796, AA727896, AA728058, AA728034, AA257402, AA848180, AA728053, AA273092, AA842891, R82900, AA941899, AA550212, AA570819, AA848179, N43466, T18112, W51512, AA495115, F13984, AA728040, C94558, AA848184, AA280453.

SEQ ID NO: 187

ISIJOI

- M64098, X65292, AD000685, AC004674, AC002390, AE000865, AC002401, W19633, W37981, W31034, AA359356, W44329, W73049, AA381485, AA214033, AA641745, W01130, AA479864, AA482668, AA401033, AA828905, N42463, AA441839, W23803, AA316561, M61993, W25087, AI024044, AA300166, W49676, AI025179, W68791, P00883, AA146949, W01317, H45860, AA434028, AA600742, AA128972, R10793, N44804, N80615, AA887217, AA046842, W67840, W61058, R88120, H45012, H24653, H44345, W58142.
- H28895, W80837, AA721685, AI042406, T78959, D53374, AA767635, AA057608, AA946654, T54011, AA335450, AA960756, N30752, AA083591, AA381662, AA341843, AA102142, AA454749, AA382049, AA369065, AA047013, AA843494, AA641801, AA400954, AA946847, AA594410, AA884045, AI003618, H44546, H43740, W37982.
- 30 N57289, AA878271, AA875915, R72666, AA291061, AA991318, AA025686, W49677, AA477495, AA846174, AA279218, AA577098, H39554, N53985, H42595, T61029, N67624, N24525, AA989491, AA743117, AA541753, AA114948, AA290671, AA593962, AA781318, AA510140, W34551, AA832661, AA068830, AA072174, AA915680, AA797967, W87974, AA199235, AA097251, AA397017, AA543154, AA403638, AA450715, W70682, W99218,
 - 35 W96859, AA870726, AA797012, AA789632, AA647678, W44312, W70581, AA240843, AA289855, W70954, AA067654, W45866, AA500569, AA798641, AA475794, AA915281, AA896524, AA388231, AI048915, W88758, AA879972, AA098075, AA636830, AA063925, AA537589, AA067923, R74742, AA794586, AA199522, AA140460, AA575302, AA575283, AA241190, AA008420, AA050156, AA537346, AA438310.

SEQ ID NO: 188

M64098, AA603107, AA583290, AA614017, AA098837, AA148086, AA057676, AA551220,
AA593938, AA128973, AA160012, AA526472, AI042406, AA995160, AA477495, AA704131,
AA722544, AA505439, AA047013, AA180932, W73278, AA457697, AA113374, AA989491,
AA403042, AA400954, AA594410, AA600742, AA428988, AA708708, AA564144,
AA878271, AA434259, AA828165, AA411459, N68157, W57614, W44389, AA541600,
N70299, W49677, AA083472, W37982, N93230, AA708699, AA946847, AA515284,

AA531317, T57842, AA441785, H70034, AA290671, H44547, W68699, AA279218, AA133142, AA649913, AA507239, AA115525, AA182561, C05839, AA160688, T03344, N67663, AA541753, AA149283, AA292051, AA434337, H58081, W57871, AA846174, H39203, N39259, AA887217, AA902746, AA960920, AA843494, AA402167, AA503604, H44346, N89879, N30752, N35500, H44960, H28205, T03299, W73049, R88214, AA641801, H51204, AA349512, AA401333, H64553, AA991318, N57289, N98489, AA064637, AA781318, T54271, T28082, H28896, AA066370, AA050156, AA388231, AA199522, AA240991, AA537589, AA914841, AA014371, AA521990, AA832987, AA718368, W97559, AA475794, AA288089, W98758, AA760582, C77790, W45866, AA863850, AA575283, AA839141, AA798641, AA879972, AA240843, AA681112, AA896524, AA289855, AA063925, AA098075, AI048915, AA709514, AA575280, C85088, AA087994, AA450715, AA407960, W08948, W96859, AA543154, AA537591, AA762074, AA801657, AA955391, H31891, C73265, H34134, C71182, D40593, C23460.

SEO ID NO: 189

15

-0507

U75633, U72937, U72936, U72938, AF026032, AF000153, U72900, AF000157, U72904, AF000154, U72901, AF000158, U72905, L33813, AF000155, U72903, AF000156, U72907, U35238, D83975, D89151, D83976, AF027172, X82835, U90548, L23313, AF009513, Z49444, Z75550, L28827, AB009467, X55315, X95465, J05091, Z74874, L23312, U24233, Z49442, M33324, AE000584, U18650, Z83102, H51969, AA348912, H28513, H16150, H89861, R87885, AA758775, AA478585, AA731296, AA479322, AA703054, AA505847, AA401962, T26539, AA904382, AI028568, AA402025, AA683588, W44382, AA234051, AA825832, AA526914, AA548515, AA570719, AA502746, T99124, AA129431, AA795462, AA119710, AA475930, AA636654, AA983117, AA914011, AA690476, AA444530, AA930251, AA646231, AA550314, D37000, AA698955, AA957328, C46988, C69695, C69062, AA820935, AA924036, C94029, AA955102, AA263284, AI030621, T18236, D15320, X91693, AA752192, D15340, N21752, C93829, AA820757, C10997, R90106, C73999, C29036, Z34220, D67590, AA924715, AA392459, C64193, AA3944704, C44965, C46353, D22841, W43492, AA925224.

35 SEQ ID NO: 190

U72936, U72937, U72938, U09820, U75553, L34363, U72909, AF000160, AF026032, D64059, L33812, U97081, U72911, U97080, U72910, X99643, AF059614, X56668, Z81534, L32954, AF019715, Z80215, AC004613, AC003049, Z85983, Y00789, AC004366, J05161, D37935.

- L25759, AP000053, Z46659, U28732, Z73546, Z74961, Z79600, U01844, U05314, AL021528, Z36019, X56772, AC002451, Z70678, Z97339, Z11115, J03585, AB002307, D14135, Z12139, X63578, AF003528, AC004470, AC002406, L05146, AF013614, AF016669, Z37093, M38468, Z50028, D14667, U15220, X51604, U69730, AC003058, X51678, Z78061, AA026415, AA026492, AA565477, AA334257, AA334400, W03358, Z43437, AA230308, W03379,
- 45 W03380, AA553586, W27701, AA035437, AA423988, AA642957, N47911, W07601, AA297731, AA424028, AA431985, AA452037, AA742931, R07135, AA378282, AA807999, H04669, H51991, AA296920, AA167097, AA166771, AA781460, AA702780, AA877937, AA409657, AA462438, AA466795, AA432643, AA553106, AA839627, AA413977, AA611818, W45775, AA866914, AA517484, AA437824, AA119733, C89551, W61745,

- AA000578, AA542176, AA658788, AA204302, AA123494, AA239671, AA064096, AA138098, AA666764, W80002, AA032783, AA839384, AA572665, AA615560, AA929543, W53754, AA253722, AA275070, AA097018, AA097462, W20635, W76935, W11176, AA002851, AA039046, AA616970, W57270, AA032390, W14330, AA982254, AA620100.
- 5 AA059798, AA220035, AA118612, W89810, AA755079, W48197, D28660, AA003116, AI048374, AA472437, AA839079, AA690479, W83517, AA469719, AA570969, W43426, AA728607, AA009334, C52642, AA940791, C51634, C54184, C43015, AA940686, C52004, AA949936, AA720413, C43206, C51719, AA440870, AA940687, AA542455, D33653, D27538, AA949937, D32984, AA098714, D42544, AA012052, AA850442, T36863, H37415.
- 10 AA801243, N61107, AA945672, AA901373, AA752359, D42940, AA964785, AA925307, AA494739, T76076, AA801210, AA257210, H34173, AA012373, AA898389, W78683, AA253537, AA404810, Z36916, AA520493, Z30478, C22922, AA497210, C83830, AI034933, W00775, AA550279, T44623, AA567291, AA735572, H36274, AA051931, AA441268, AA949536, AA990963, AA545882, R04230, C43248, C68663, AA601762, AA689188,
- 5 AA990980, AA902048, AA848939, AA944558, C69572.

SEQ ID NO: 191

- D42053, L28801, L06133, U27363, X82338, U29946, L06476, Z94801, X69208, M97936, M97935, U06924, D58723, AA447393, T79137, W22306, W27193, W26625, R91353, R14073, R35174, AA214490, T81841, W22572, AA323811, F13144, R02679, W26522, AA146711, N84513, AA828793, AA069801, T79229, W93450, AA884617, R98261, AA353908, W74516, W73267, AA151515, R76379, T85989, AA465258, AA150254, AA657429, AA565231, AA629291, AA758108, H95214, R68856, AA490187, H58974, AA152270, AA857750.
- AA479264, T87538, H40835, AA853726, W86466, N41906, N32565, H67429, AA046628, AA502921, W95916, AI033829, AA166775, AA310739, H94342, R98026, W95563, AI048328, AA433571, AA423080, AA644864, AA718458, AA543710, AI021250, W74901, W48016, W98370, W63833, AA009063, W71474, AA016581, AA107664, C22660, AA900295, C22396, AA943614, C13744, AI014096, R90357, AA852004.

SEQ ID NO: 192

- 35 D42053, M64788, AF043700, AF016419, AC004499, L76554, AF003140, AF067220, R02266, AA654515, AA742462, AA447394, N72883, AA628966, AA236994, AA834615, AA446111, AA877651, AA576481, AA411511, AA889296, AA743851, AA973832, AA627820, N74271, AA766834, AA707912, T58626, H53387, F10747, R85475, Z39927, T81314, AA327582, F04353, H29869, H02136, AA883947, AA988154, T33950, R02561, H02034, F03110, T33768.
- 40 R40198, N29923, AA099039, AA662568, R50833, AA402357, H88660, H88705, T78650, T58675, T33387, R40190, AA746798, N64451, AA860459, AA317017, D20369, H02744, AA099038, N55133, R39213, H229965, AA421884, H29865, R21463, AA505876, W69228, AA775741, R50030, AA639782, AA282899, H25797, AA026257, H50744, AA844425, AA587939, R46426, AA529438, AA590919, AA222198, AA268595, AA840494, AA914804,
- 45 AA789963, W53978, AA244772, AA286589, AA052101, AA031209, AA518865, W53817, W66617, AA963771, AA859063, AA858714, AA735566, AA246925, AA390686, D24127, AA941796, AA901200, AA955950, AA955823, F14905, C95042, AA899670, AA963429, AA893891, AA542593, AA819039, AA944748.

WO 99/04265 PCT/US98/14679

SEQ ID NO: 193

D82364, Z96104, AF044337, AC002350, AB009841, AB009840, AC002452, M16599 AC004532, X97051, X90568, AA159846, AA594263, N70387, R57953, AA230226 AA253265, R92717, D51239, AI033484, AA680398, R36604, AI027861, AA760658, AA995326, R25067, AA678211, AA931384, N21385, AA814528, AA165374, W03607. AA045228, AA180120, AA112755, AA100270, AA060863, AA673217, AA895087. AA940465, C80212, AA499699, W41638, AA067181, AA290141, AA920323, AA869442 AA060257, AA646775, AA017984, AA013934, AA277945, AA592138, AA682015, W20995 AA168403, W65638, AA939908, W08710, AA475829, W97829, AA754913, AA015405. AA386663, AA998973, AI044670, C27898, AA224665, AA899929, AA393010, AA224685. AA956804.

15 SEQ ID NO: 194

40

U35048, AJ222700, L25785, D82364, X62940, D49740, Z81128, AA464830, AA599821. AA553999, AA917943, AA976635, AA573908, N27936, AA664389, AI002974, N33791. AA873219, AA587785, AA535813, AA503808, AA889489, AA631692, AA855095 AA149819, AA533046, AA446460, N66371, AA160747, AA991470, N64128, AA838132, AA845460, AA906853, N45237, N46442, AA126267, AA084241, AA152048, H02610. AA160987, AA609858, AA554901, T03821, AA515986, N32501, AA928291, AA084520, AA669051, AA508083, AA450300, N92537, AA192881, AA888613, AA598465, AA507795. AA634078, AA412366, AA995956, AA019868, AA834976, AA533116, T35173, T03717. AA962273, T35302, N30679, AA953347, AA532667, R46464, AA316492, AA029139 F10754, N95003, AA935097, T33411, AA206918, N62084, AA808750, N57507, T33578. D25688, T91206, AA630181, H11073, AA574446, AA598493, T07972, N89996, H37764. AA026140, AA593046, R99117, AA599758, AA782803, AA564628, T23754, AA191470 AA532503, AA039756, T15466, R02169, AA598857, AA744887, AI050085, H44041, T15964 AA869151, AA207967, AA840235, W12743, AA221316, W18390, AA388237, W15040. C87096, AA139599, AA683908, W40979, AA023495, AA268967, C87700, AA137505, AA242471, AA389283, AA537629, D19293, AA589566, AA388914, AA270762, AA110435, AI036412, W54801, AA967148, C87390, AA674817, C86699, AA674079, AA108476. C87766, AA796807, AA546926, AA882325, W10711, AA671021, AA266036, AA606569. AA108497, W34822, W59345, W47841, C86982, AA960436, AI048667, AA822378. AA397283, AA426786, AA034902, AA624924, AA919292, AA038277, AA472859. AA815583, AI047972, AA675464, AI048029, AA571115, C77324, AA103712, AA799781.

SEO ID NO: 195

X98260, AC004668, D63784, U53208, AC004217, U00158, AL021918, M63718, AC003685, AB012130, L76665, U73395, L41267, X89893, U30272, L76663, L76666, U24075, U50546, 45 L41347, U30274, L76672, L76667, AF022046, X94373, U31416, L41269, AF022047, AF022045, X97233, U73396, AF001887, AJ002103, U24078, AF022049, X89892, L76671. AF002255, X93595, L76661, L41268, AJ002104, U33328, AF022048, AJ002102, L76662, U32515, U24077, AC004633, L07648, L41270, X94262, L76670, L76668, X94374, M62698. X98858, U30273, U24079, U24076, AF001883, X97232, X94609, X93596, X97230, L76669.

AA849213, AA800595, C23543, AA141869, H35460, AA253555.

35

15

U97179, L76664, U24074, AJ002105, X97231, AF022044, AL021368, U16824, AF067214, AC001462, L29389, Z97180, D44480, S80994, M64423, M64278, U29086, Z48483, AC002478, Z83223, U18385, Z81550, Z71255, M25481, U12980, AA337826, AA188700, N89413, AA954584, AA429406, D20011, T11010, AA708608, W25067, W38808, R86666,

- C04536, T81614, R53773, AA137008, AA506680, AA683371, H69924, AA991350, R18239, T91842, H10763, H69900, AA655986, AA823236, AA623340, C81307, AA294124, C55948, C53035, C55126, C55546, C74428, AA406687, L33498, C07212, AA924466, AA563571, AA800701, AI012885, AA799448, AA542571, C71570, AA042402, C71640, AA924013, AA555371, AI008699, T02190, D72664, AA944558, D65812, D66368, T01369, AA979509,
- D71236, T44205, T01827, D40672, C58618, W06125, C07201, AA606065, C46115, D40203, T01370, R04640, D71248, C72556, D71547, T01558, C91738, D72553, C07785, AI044627, C13152, C13100, D64746, D66766, D71651, D71383, C11108, D68214, D70434, R64982, C11146, C07159, T04838, C59680, C36053, C58548, C58131, R29854, C37817, M79626, C34637, C31764, AA098688, H31962, C08288, C08079, D72544, D72761.

SEQ ID NO: 196

X98260, D63784, U53208, AC004668, AC004217, U88173, S82426, Z71181, M96360, X16259, U94848, AL008631, L22858, D11079, AL009197, M35027, AB001289, X69908, AA189125, AA911232, AA553955, AA639055, AA524380, D20011, AA543065, AA131089, AA631261, AA974199, N29844, D79259, AA833629, H16096, N57262, AA099831, AA134575, N49980, AA101187, AA602492, AA781579, N75345, AA131117, AI025027, AA481652, T55888, AA286766, AA376397, Z33555, AA375199, AA222952, C76144, AA465751, AA267740, AA823236, AA62340, AA458394, AA186093, AA592692, C88240, AA645411, AA692798, AA673943, AI005822, AA839497, AI019274, AA217098, AA964764, C94149, C93888, AA520468, AA650884, T75921, Z33959, AA739671, AA991012,

30 AA255405, AA514157, AA246177, AA406723, AA109313, AA509291, AA273162, AA842066, AA991140, AA991141, AA246061, AA283471, AA508994, AA201262, AA246055, H74419, N97480, AA395498, T22427, AA945238, AA945650, AI034509, AA899000, F23033, T42287, Z30913.

AA585033, AA246163, AA255395, AA111786, AA933444, AA933412, AA842447, AA471727, AA114405, AA570825, AA570895, AA991128, AA480733, AA842566,

SEQ ID NO: 197

U47742, AB002381, AJ000729, L42550, M33956, AC002991, X01380, X05424, K01964, AB003499, M32660, AA248767, AA219722, AA504689, R41711, AA296844, AA492416, R51283, AA049428, AA217923, AA607511, AA689975, AA015159, AA163336, AA791924, W84145, W85185, AA097378, W18536, N28107, AA592602, AA543587, AA030663, AA881846, C81003, C80991, W08678, W66831, AA184127, W29542, AJ013408, AA201942, C23941, T38919, AA042496, AA699041, AA699045, AA924655.

45 SEQ ID NO: 198

U47742, D45215, AC002531, Z81365, AC000363, AC002049, AC000354, Z99572, AA878434, N63358, F16898, H81239, AA777772, AA777633, W28526, AA612635, AA001784, AA599173, AA572806, N26278, W27839, AA187625, AA492285, W27783, R79573,

AA837952, W92573, AA736420, R63244, AA187468, AA525322, AA300947, AI015836, AA372599, W92572, R43233, T65924, AA769105, AA001783, AA583238, T64498, AI018263, AA642877, T80364, AA510934, AA510934, AA510934, AA642877, T80364, AA510934, AA510934, AA642877, T80364, AA510934, AA6187655, AA139991, AA237829, AA736031, AA818174, W66470, AA753486, AA618746, C54011, C59484, AA042149, Z47591, Z97742, AI008239, AA550555, AI029811, AA438705, AA113467.

SEO ID NO: 199

10

30

L04733, M75147, M75148, M75146, U48359, Y14586, X69658, AF055298, L11013, D88672. U41356, U82207, U37100, X75972, X84047, M34270, AC003973, U40232, Y13714. AJ001448, X14820, D56386, AA326459, AA323263, M85516, AA410206, N99532. AA074408, F06922, AA853868, AA442752, W04244, AA429741, AA765313, AA635087, AA749266, AA036846, AA179452, AA306684, AA972742, AA002132, AA569330, AA848025, AA580719, AA324576, H91884, AA173544, AA230534, AA509865, AA647015, AA015415, AA611446, AA518630, W11435, AA615751, W40723, AA794060, AA839731, AA920796, AA637666, AA007747, AA403503, AA871286, AA980204, AA469753. AA560829, AA209821, AA615604, AA792287, AA270185, AI047789, AA467108, AA795217. AA617555, AA855214, AA943900, AA964280, AA997897, AA818427, AA944331, H35289, AA264390, C28173, R47083, D15606, AA753035, C29164, AA040981, T13853, T22855. D23570, H77210, C48820, AA042362, C08588, D75062, C72679, D39380, AA520864. C46247, AA598156, C43207, C28089, C41549, AA699284, N38494, C43868, C26816, AB002714, AA201585, D15360, C50288, C08807, C09524, C09302, C27909, C74054, 25 C44856, D75996, D75759, D75259, AA697754, D49290, C48498, C46887, AA695529. C46167, C47812, C43571, AA801733, C42850, C42279, C42041, D35323, C41449, C40103, C27383, T02400, D37512, C08957, C26890, C09377, AI045731, AI044490, AA697888. C10151, C40182, AA597441, C20433, D28193.

SEO ID NO: 200

L04733, AF037222, M75147, M75148, M75146, U48359, Y14586, AF055298, L11013. Z29645, Z29644, L24440, L24439, L24441, U40959, Z81007, Z99130, U53147, U83509, L00113, AF003493, AL023094, X66594, AL009204, H20962, H27867, , H21003, AA284075, W46349, H27868, AA353853, AA228951, AA933939, AA345614, AI042244, AA508740, AA936551, , AA935112, R61106, R25832, T09254, R56336, AI003952, AA975443, T33488, . AA620898, T33533, AA808155, AA888616, , AA449036, AA229380, AA810055, AA558736. AA460144, AA836527, AA247108, AA321862, AA683381, R35099, AA284169, R25813, W46165, M78613, AA188753, AA325754, H40608, T09255, AA813710, AA618295, AA361462, AA361472, AA830824, AA601211, AA410922, H16117, AA309172, AA270658. AA212157, W45752, AA117565, W88170, AA049655, AA030409, W10467, W81858, AA048063, W98588, AA059822, W29679, W62338, W81854, AA000386, W99868, AA734911, W16197, D77341, AA590149, AA272354, AA691900, AA899876, H33481, D70294, AA695675, AA614880, AA675937, AA680593, AA674127, AA934215, AA666451, AA917125, AA934333, AA680602, AA917285, AA825053, AA674133, AA934347, AA736361, AA680580, AA610975, AA934319, AA934250, R95352, AA917100, AA915850, AA720442, AA917301, AA934200, AA618801, AA614881, AA915862, H31037, AA618669, AA934241, AA917248, AA917217, AA720451, AA701722, AA683454, AA683426,

AA682179, AA682171, AA635215, AA625031, AA635214, L46433, AA934198, R95284, R95336, R84208, H31035, C90807, AA934224, AA934227, AA629448, AA917238, AA917223, AA625046, AA915819, AA901480, AA666460, AA675954, AA610984, AA917265, AA618665, AA610976, R95342, AA958298, AA934204, AA915853, AA720440

5 AA683448, AA666424, R95953, R95952, R95945, R95359, R95317, H48183, AA934312, AA934302, AA934254, AA917293, AA629463, R95351, AA934346, AA915824, AA907981, AA666441, AA666428, AA614875, R95396, R95344, AA934310, AA675934, AA915857, AA720436, AA682173, AA680568.

10

SEQ ID NO: 201

L04733, M75147, M75148, M75146, U48359, Y14586, L11013, AF055298, U82207, U37100. AC002366, AC003973, M34270, X84047, Y13714, AJ001448, X14820, U40232, AA326459, D56386, AA323263, AA410206, M85516, N99532, AA074408, F06922, AA853868, AA442752, AA524367, AA972742, AA580719, AA324576, AA173544, AA848025. AA036846, AA179452, AA635087, AA569330, H91884, AA749266, AA230534, AA509865. AA647015, AA015415, AA518630, AA611446, AA615751, W11435, W40723, AA794060, AA839731, AA920796, AA403503, AA980204, AA871286, AA637666, AA792287, AI047789 AA467108, AA469753, AA617555, AA795217, AA560829, AA615604, AA450950. AA538370, AA221067, AA004165, AA655931, AA116611, AA914871, AA067626. AA107804, AA144111, AA943900, AA818427, AA964280, AA997897, AA944331, C28173. AA264390, C74002, R47083, T22855, AA753035, T13853, T02400, C10151, C09302, AA042362, C43571, AA598156, H77210, C46247, AA699284, D75759, C43207, AA520864. C42041, AA597441, C08957, D28193, D35323, C44856, C09377, AA201585, D39380. C26816, C40182, AA697888, D15360, D75996, C48820, D75062, C48498, C47812, C46887, C46167, AA697754, AA695529, AI044490, H33296, C42850, C42279, C08807, C41549, C41449, C40103, C08588, C43868, H35289, D37512, C09524, AA801733, C72679, C50288,

30

SEQ ID NO: 202

D75259, AB002714, N38494.

AF037222, M75148, M75146, U48359, AL009204, Z54173, AC004360, M93339, Z54174, 35 AA933939, Al042244, AA936551, Al003952, AA975443, AA935112, T09254, T33488, AA888616, AA620898, AA808155, T33533, F03186, AA975330, T33906, AA987289, T30145, AA972722, AA907223, R46830, R61829, R46810, R49486, T32146, T33506, AA364499, AA284075, W46349, H20962, H27867, AA228951, AA353853, H27868, AA345614, H21003, AA508740, R55809, N92239, AA017680, C14877, N90902, AA904910, Al049799, C02576,

C14616, AA040604, D81988, AA364393, AA897696, AA905071, AA810055, W98588, W10467, W81858, W18083, W29679, W18917, W29911, AA030409, AA048063, W45752, AA059822, AA049655, W88170, AA212157, AA117565, AA270658, W36050, AA051329, AA511037, W13503, AA230588, AA231106, AA624293, AA170741, AA388737, AA560869, AA110993, AA221530, AA869929, AA250568, AA944723, AA955073, AA531681,

45 AA494698.

SEO ID NO: 203

M75165, M12125, X06825, U29167, X58381, M81086, X12650, M87635, K02446, M23081, M64288, M23082, M64287, Z66527, M24635, S78854, L35107, M36337, M36336, X04690, M32441, M24634, X61273, Z66490, M17914, M17913, X04201, U33450, L25609, X66274, M19267, M19713, Z36788, M22479, X64831, X05276, M606667, M60666, M34135, J02780.

- 5 J00910, M92304, V00893, Z24727, U04541, M12126, L00373, X02412, M23765, X02411, M23764, L00372, M19715, M19714, X52244, X61272, M87307, M34136, M60669, M34134, M60668, X52243, AF013612, L00375, X72859, L24775, L24776, L24777, M15044, X51626, M21224, U33449, S82383, M21223, X53753, X12369, L35239, X51625, X04588, X03541, L00374, Y00169, X51624, M21225, X51627, X57993, X16236, M15472, J00312, X16230,
- 10 X57991, M16432, V00892, L00376, L35238, L00377, X54279, X54278, Z83313, M21226, AA640943, AA640697, AA467909, AA704139, AA197262, AA666145, AA669820, AA704070, AA594968, AA196231, F00526, AA595323, AA599517, AA373420, AA157609, AA069985, AA622022, F01115, D57262, AA595380, AA375886, AA283746, AA3333336, AA341434, AA340705, AA670031, AA858221, AA359599, AA229593, AA194475,
- 15 AA225258, AA588750, AA375884, AA394062, AA166737, T91493, AA622307, T48008, AA091366, W76573, W72570, AA599467, AA346260, AA373849, T19964, AA631155, AA341932, H46496, AA299082, F00980, F00784, AA374875, AA479560, AA179369, AA531086, AA603988, AA534759, AA558154, AA330919, AA224750, AA059453, AA613265, AA176790, AA147720, AA477400, AA180956, AA283684, AA911281,
- 20 AA565346, T92451, AA635269, F00822, AA345989, AA167017, AA179035, AA133943, AA639079, F01064, AA327073, AA600092, AA374651, AA192132, W96503, T11706, AA192109, AA180975, W19118, C02894, F00502, AA188390, F00868, AA373237, AA091477, W76369, AA181411, N89162, AA192706, AA091727, AA197324, AA176792, AA791722, AA710866, AA816047, AA239722, AA240116, AA637356, AA636703, W64162.
- AA250531, AA266075, AA220317, AA221748, AA691397, W65567, AA537264, AA269855,
 AA231405, AA651773, AA463158, AA033007, AA717285, AA611244, AA673836,
 AA537820, AA212586, AA755615, AA690773, AA269859, AA222788, AA636872,
 AA230983, W62506, W58806, AA636258, AA066775, W78439, W18330, AA930703,
- AA030657, AA718228, AA238857, W44028, AA982880, AA168448, AA771434, AA597186, 30 AA530744, AA238992, W88106, AA272336, W62359, AA656935, AA003859, AA530638, AA670772, W77305, AA509508, AA509486, W97271, AA616746, AA688589, W41329, W65816, AA612497, W62331, AA036588, AA28872, AA265919, AA616509, AA980428, AA066697, AA929425, AA463021, AA463053, AA241889, M62147, AA268742, AA656232, AA241879, AI020780, AA259705, AA222986, AA710117, AA060812, AA518492, AA463054,
- 35 AA030944, W64070, AA541901, AA222372, AA717596, AA691787, AA222520, AA231425, AA144205, AA671454, AA656231, AA647302, AA153145, AA645321, C83482, C82626, AA605935, AA012678, AA012773, AA012719, AA892224, F14809, AA108301, AA012755, C82550, C83406, AA859305, AA566238, AA566648, AA566851, AA566286, AA566644, AA253539, AA821220, AA567134, AA802284, AA736065, AA264157, AA697049,
- 40 AA695541, AA801636, AA697082, AA567410, AA263523, AA901166, C46287, C39436, T00780, C66376, AA697015, C44371, C70009, AA567812, D69675, AA263301, M79503, AA816806, AA555497, C66286, AA941527, AA979604, AA949211, AA696289, AA948946, AA390860, AA540494, AA949487, AA406880, N41272, AA264230, AA941657, Z81182, AA201467, AA978437, AA438386, N37112, Z81287, U30879, AA898275, AA685520,
- 45 AA540848, AA820724, AA924036, AI008485, D85797, C13596, AA892978, AI010059, AA800950, AA440726.

- M12125, M75165, X58381, U29167, X06825, K02446, M23082, M64287, M87635, X12650, M81086, M12126, Z36788, M23081, M64288, V00893, M24635, Z66527, L00375, V00446, X05276, Z66490, J02780, L25609, AF013612, S78854, X52244, X61272, X61273, X5233, X66274, L24775, M23764, X02411, X02412, M23765, L24776, L24777, L00382, M36337,
- 5 M36336, X64831, M22479, M34135, M34134, M60667, M60666, M60668, M60669, M34136, J00910, M21225, X51627, X72859, M32441, X04690, M24634, L00380, M17914, M17913, M15044, S82383, Z24727, L00377, L0376, X12369, M19713, M19714, M19267, M19715, L35238, X53753, U33449, L35107, X54279, Y00169, L35239, U33450, M87307, M21226, J02526, V00445, M21224, X51626, L00379, U04541, X04201, X04588, M69143, X57994.
- X03541, X16237, M92304, V00892, M16433, L00374, Z83313, M15043, M12127, X16238, AA669820, AA640943, AA666145, AA704139, AA594968, AA595323, AA599517, AA704070, AA858221, AA670031, AA588750, AA166737, AA599467, AA622307, D57262, AA595380, AA229593, AA531086, AA603988, AA622022, AA558154, AA613265, AA069985, AA147720, AA565346, AA635269, AA167017, AA224750, T92451, AA070759.
- 15 AA342215, AA070760, AA102115, T48009, AA631155, AA747279, AA600092, AA468261, AA330919, AA747402, AA341434, AA533743, AA479560, AA639079, AA516177, AA534759, AA467909, T29630, AA059340, C01021, AA196231, AA327369, AA657481, T58571, AA194475, AA865934, AA157609, AA730981, T58532, W72570, H46496, AA299082, W76573, F00980, AA373849, AA299207, AA550766, AA229684, AA179369
- 20 AA554522, AA554529, AA640697, F00138, F18504, AA059453, F17676, AA333336, AA197262, F16069, AA341932, AA699407, AA635501, AA194549, AA448329, AA176792, AA292342, F20460, T48008, AA514516, AA197324, AA970627, F01064, AA468706, AA453298, AA541765, AA329154, AA834112, F21577, AA345989, F00868, AA238992, AA980428, AA656232, AA222986, AA791722, AA208641, AA710866, AA530638.
- AA710117, AA066697, AA816047, AA240116, AA239722, AA030944, AA958979,
 AA259705, AA637356, AA691397, W64162, AA636703, AA250531, AA2211748, AA266075,
 AA220317, AA717285, AA530744, AA269855, W65567, AA537264, AA611244, AA265531,
 AA657173, AA231405, AA463158, AA033007, AA212586, AA755615, W40734, AA537820,
 AA673836, AA718228, AA269859, AA636872, AA636258, AA222788, W41052, AA690773,
 W65506, AA230983, AA797470, W55806, AA666737, AA692890, AA667678,
- 30 W62506, AA230983, AA797470, W58806, AA066775, AA982880, AA030657, W18330, W78439, AA930703, AA409699, AA563146, W44028, AA238857, AA153489, A1006609, AA691787, AA667845, AA222520, AA003095, AA231425, AA222372, AA611396, AA717596, AA762568, AA871856, AA239616, AA597186, AA656231, AA530278, AA611447, AA717792, AA168448, AA671936, AA718774, W14085, AA670772, AA575261.
 - AA117289, AA003859, AA986011, AA027698, W10374, AA002960, W62253, AA616744, AA794213, AA445463, AA726372, AA855820, W53070, AA152584, AA152616, AA012678, AA012719, AA012773, AA012755, AA012714, AA605935, AA892224, AA858875, AA859305, F14809, C82550, AA800276, AA859231, AA955111, C83406, AA253539, AA901166, Z84024, C68528, C11929, AA850301, AA892279, AA850579, AA850481,
- 40 D66506, AA850300, AA859196, AI008798, H32166, W96784, D85797, U30879, AA263363, AA495717, AA978673, AA898617, C13596, AA540271, AA696190, C27749, AA949385, D71223, N61956, C42515, N82456, AA800319, D72548, W63411, AA698426, D71898.

45 SEQ ID NO: 205

M12125, M75165, U29167, X58381, X06825, M23082, K02446, M64287, M87635, X12650, M81086, M12126, Z36788, V00893, V00446, M23081, M64288, Z66527, L00375, M24635, L25609, Z66490, L00382, X05276, X61273, X52244, L00380, X61272, AF013612, L00377.

X66274, S78854, X52243, J02780, L00376, M21225, X51627, M34135, M34134, X02412, M23765, M60667, M60666, M23764, X02411, M60668, M60669, M34136, M24634, X54279, M21226, X64831, L00379, X12369, Z24727, M22479, L24776, L24777, L24775, V00445, J02526, M19713, M19714, M19267, M19715, L35107, U33449, Y00169, M36337, M17914.

- 5 X04690, J00910, M17913, M36336, M15044, S82383, M16433, Z83313, U33450, M32441, M15043, X72859, L35238, X04201, L35239, X04588, M69143, X57994, X51628, X16237, M92304, AF034954, AF034953, X03541, U04541, X53753, M12127, M87307, U088708, X16238, AA669820, AA640943, AA666145, AA594968, AA595323, AA599517, AA704070, AA166737, AA599467, AA622307, D57262,
- 10 AA229593, AA595380, AA531086, AA603988, AA558154, AA613265, AA622022, AA147720, AA069985, AA565346, AA635269, AA167017, AA224750, T92451, AA070759, AA342215, AA070760, T48009, AA102115, AA747279, AA631155, AA600092, AA330919, AA68261, AA747402, AA533743, AA479560, AA639079, AA516177, AA341434, AA059340, AA534759, T29630, C01021, AA327369, AA657481, T58571, AA865934,
- 15 AA730981, AA467909, T58532, AA194475, AA196231, AA299082, H46496, AA299207, AA550766, AA229684, F00980, W72570, AA373849, AA179369, AA554522, W76573, AA554529, AA157609, F00138, F18504, F17676, AA059453, F16069, AA699407, AA176792, AA194549, AA448329, AA635501, AA292342, F20460, AA514516, AA197324, AA970627, F01064, AA553540, AA453298, AA612870, AA468706, AA541765, AA329154, AA834112, 20 F21577, AA524088, AA346234, AA176572, AA345989, F00868, AA238992, AA980428.
- AA656232, AA222986, AA791722, AA208641, AA710117, AA710866, AA958979, AA530638, AA259705, AA030944, AA066697, AA637356, AA816047, AA240116, AA239722, AA691397, AA265531, AA636703, W64162, AA250531, AA221748, AA266075, AA220317, AA269855, W40734, W65567, AA530744, AA717285, W41052, AA611244, 25 AA797470, AA537264, AA231405, AA463158, AA033007, AA212586, AA657173,
- AA537820, AA673836, AA755615, AA409699, AA563146, AA269859, AA636258, AA718228, AA691657, AA690773, W12550, AA636872, AA222788, W62506, AA691976, AA230983, AA681560, AA259588, AA667845, AA144205, AA222372, AA231425, A1006609, AA871856, AA762568, AA239616, AA611396, AA153489, AA691787, W18330, AA030657,
- 30 AA671936, AA445463, W10374, AA002960, AA726372, AA575261, AA656231, AA855820, AA616744, W53070, AA152584, W62253, AA152616, AA117289, AA530278, AA717792, AA794213, AA027698, AA611447, W14085, AA718774, AA409095, AA408132, AA016554, AA240225, AA881986, AA930685, AA574514, AA466570, AA222427, AA012678, AA012719, AA012773, AA012755, AA012714, AA605935, AA858875, AA8922224,
 - 35 AA859305, AA800276, AA955111, AA859231, AA253539, AA901166, Z84024, C83406, C82550, AA850301, AA850481, AA850579, AA892279, C68528, D66506, C11929, H32166, AA850300, AI008798, W96784, AA859196, AA263363, AA540271, AA898617, AA978673, AI010235, AA495717, U30879, C13596, D85797, A1044709, D49231, D71635, AA012148, N82456, AA520618, AA800319, D68812, D66459, D66859, AA567198, C71331, AA859869,
 - 40 AA949033, D36698, C27962, C73985, D23014.

SEO ID NO: 206

45 AA640943, AA704139, AA669820, AA666145, AA594968, AA704070, AA595323, AA599517, AA858221, AA670031, AA588750, AA166737, AA599467, AA622307, D57262, AA595380, AA229593, AA531086, AA603988, AA622022, AA558154, AA613265, AA467909, AA640697, AA069985, AA147720, AA565346, AA635269, AA167017, AA197262, T92451, AA224750, AA070759, AA196231, F00526, AA342215, AA070760,

AA157609, AA373420, AA102115, T48009, AA631155, AA747279, F01115, AA375886, AA600092, AA468261, AA341434, AA330919, AA747402, AA533743, AA479560, AA283746, AA516177, AA639079, AA333336, AA340705, AA534759, T29630, AA059340, C01021, AA194475, AA327369, AA359599, AA225258, AA657481, AA375884, AA394062, T91493, T58571, T48008, AA091366, AA865934, W76573, W72570, AA730981, AA346260.

T58532, AA373849, T19964, H46496, AA341932, AA299082, F00980, F00784, AA374875, AA550766, AA299207, AA179369, AA229684, AA554522, AA554529, F00138, F18504, F17676, AA176792, AA176790, AA197324, F01064, AA345989, AA791722, AA710866, AA816047, AA240116, AA239722, AA238992, AA637356, AA636703, W64162, AA250531,

10 AA221748, AA266075, AA220317, AA691397, W65567, AA269855, AAS37264, AA231405, AA657173, AA463158, AA033007, AA717285, AA611244, AA673836, AA980428, AA537820, AA656232, AA212586, AA755615, AA690773, AA269859, AA222788, AA636872, AA230983, W62506, W58806, AA636258, AA222986, AA066775, W78439, W18330, AA930703, AA030657, AA718228, AA238857, W44028, AA982880, AA168448,

15 AA771434, AA597186, AA530744, W88106, AA272336, W62359, AA530638, AA656935, AA003859, AA670772, W77305, AA509508, AA509486, W97271, AA616746, AA688589, W41329, W65816, AA612497, W62331, AA036588, AA288872, AA265919, AA616509, AA066697, AA208641, AA929425, AA463021, AA463053, AA241880, W62147, AA268742, AA241879, A1020780, AA710117, AA259705, AA060812, AA518492, AA463054, AA030944.

20 AA958979, AA541901, AA222372, AA717596, AA691787, AA222520, AA231425, AA144205, AA671454, AA656231, AA647302, AA153145, AA012678, AA012719, C83482, C82626, AA012773, AA012755, AA605935, AA012714, AA892224, F14809, AA858875, AA108301, C82550, C83406, AA859305, AA566238, AA566851, AA566648, AA566286, AA566644, AA955111, AA859231, AA800276, AA253539, AA567410, AA264157,

25 AA802284, AA697082, AA695541, AA801636, AA567134, AA821220, AA736065, AA697049, AA263523, AA901166, Z84024, AA697015, AA567812, M79503, AA263301, C66376, D69675, C39436, C44371, C46287, T00780, C70009, AA816806, AA555497, C68528, AA892279, C11929, D66506, AA850481, AA850579, C66286, AA850301, AA949211, AI008798, AA696289, AA540494, AA859196, AA948946, AA949487, W96784, AA264230.

30 AA406880, AA941657, N41272, Z81182, AA201467, AA438386, AA978437, H32166, AA941527, N37112, AA390860, AA979604, AA850300.

SEQ ID NO: 207

35

M90309, M96256, M90820, D82876, M95123, U62545, AF005383, U28379, Z81009, AC003982, AE000387, U57833, U58751, U97592, U64849, U61224, U10123, U10127, U10131, U10133, U60970, U10125, U61238, U23170, U69639, M29192, AA662136, D56262, AA316768, AA425201, AA180767, D52197, AA083191, AA196815, AA305565, AA211880,

- 40 AA099456, AA374550, D54751, AA830458, AA083192, AA904934, H16000, AA304018, AA330777, AA301380, AA661783, AA626635, AA507452, AA358517, AA910956, A1039677, AA805078, AA722415, AA133184, AA745880, AA662099, C03243, N88739, AA133371, AA091762, AA514235, AA946647, AA207200, AA934449, AA365011, T23842, AA652387, N63329, AA878427, AA402087, AA937256, AA687770, AA731077, AA515865, W67861,
- 45 W67804, AA809606, H42504, AA709130, AA757083, AA856607, AA287349, AI015577, W69692, N29511, AA701928, AA815104, AA929000, H80862, W46860, T09413, T28999, T78553, T95232, AI040805, AA040668, Z45180, R52744, R60482, AI014338, T87832, H18710, H52017, AA430392, F11745, R20592, R79671, R88938, AA007693, AA215302, T33317, H43493, N54811, AA189120, T33924, AA219658, AA446826, AA456142,

AA436121, AA631802, AA828597, H05237, AA768012, AA120298, C89465, AA797358, W08380, Al047710, AA914388, AA389343, AA168959, AA118129, AA511602, AA399855, AA18292, AA797490, AA390161, AA403528, C79625, AA170032, AA217176, AA270198, AA003544, AA546962, AA734655, AA968213, AA689698, C80997, AA216978, AA891798, AA799660, AA963593, AI043955, AI013191, AA893342, AA964549, AA818767, C55468, C53849, D71359, C11020, D34505, C66801, AA550626, D73050, T00102, D27494, D33998, D15421, AA875699, AA926207, AA893964, AI045611, AI009719, AI012274, AA946258.

10 SEO ID NO: 208

30

20

M90309, M96256, M90820, D82876, M95123, U62545, AF005383, AF000387, U28379 Z81081, U83435, AC004309, Z79999, AA626635, AA507452, AA662136, AA805078, AI039677, AA745880, AA722415, AA133371, AA514235, AA946647, AA207200, AA830458, AA083192, N63329, AA878427, AA934449, AA133184, AA402087, AA937256, AA365011. AA687770, AA425201, AA731077, AA515865, W67861, AA910956, AA182893, AA358517. W67804, AA301380, AA652387, AA541535, AA523222, D57347, AA180767, AA886161 AA330777, AA876833, AA928813, AA662099, AA512845, D56262, AA809606, AA661783. AA904934, AA091762, H16000, AA305565, AA316768, AA196815, AA211880, D52197. AA836660, AA083191, AA099456, AA815104, W69692, AI023221, AA287349, N29511. AA856607, H80862, AI015577, AA701928, W46860, AA929000, T61548, AA913564. W89194, R26007, AA446792, AI047710, AA118129, AA168959, AA914388, AA797358. AA182992, W08380, AA797490, AA120298, AA403528, AA390161, C89465, C79625. AA389343, AA399855, AA546057, AA881711, AA638279, AA200660, W10929, AA511602, AA208053, AA170032, AA003544, AA823013, C80997, C80840, AA175939, AA795640. AA254102, C86617, AA718459, AA537290, AA891798, AA799660, AI013191, AA893342. AA964549, AA818767, AI043955, AA963593, C92667, C93100, T38634, R62100, F20116. AA559808, AA933417, AA979940, AA752523, C94469, AA395323.

SEQ ID NO: 209

M90309, M96256, M90820, D82876, M95123, U62545, AF005383, X67267, Z81081, AC003964, U28379, AC003982, AE000387, AL008715, U10131, U10133, U60970, U69639, L75845, U57833, U79225, U64849, U23170, U61224, U58751, U61238, M29192, U10123, U10125, U10127, AA662136, D56262, AA425201, AA316768, AA180767, D52197, AA083191, AA196815, AA305565, AA211880, AA099456, AA830458, AA083192, AA374550, D54751, AA626635, AA904934, AA507452, H16000, AA304018, AI039677, AA301380, AA330777, AA661783, AA805078, AA745880, AA722415, AA358517, AA133184, AA910956, AA133371, AA514235, AA946647, AA207200, AA934449, AA662099, AA365011, N63329, C03243, N88739, AA878427, AA091762, AA402087, AA937256, AA687770, AA731077, T23842, AA652387, AA515865, W67861, AA182893, AA523222, AA541535, W67804, D57347, AA512845, AA886161, AA928813, AA896066, AA876833, H42504, AA709130, AA757083, H80862, AA815104, W46860, AA856607,

45 AI015577, W69692, AA287349, N29511, AA929000, AA701928, H18710, AA007693, AA430392, F11745, R88938, R20592, R79671, H43493, AA456142, AA828597, AA189120, AA446826, AA631802, AA913564, N54811, AA768012, AA219658, T28999, T95232, R26007, AA215302, H05237, AA457346, AI040805, T78553, AA436121, AA120298, C89465, AA797358, W08380, AI047710, AA914388, AA389343, AA168959, AA118129, AA511602,

AA399855, AA182992, AA797490, AA403528, AA390161, C79625, AA546057, AA881711, W10929, W85287, AA170032, AA003544, AA217176, AA546962, AA968213, AA216978, AA270198, C80997, AA891798, AA799660, AA963593, A1043955, A1013191, AA893342, AA964549, AA818767, C11020, C55468, C53849, D71359, D73050, AA550626, T00102,

5 D27494, D33998, C66801, D34505, AA875699, AI045611, AA893964, AA926207, AI009719, AI012274, AA901041, AA946258, D15421.

SEQ ID NO: 210

10
M90309, M96256, M90820, D82876, M95123, U62545, AF005383, AE000387, U28379, Z81081, U83435, Z69302, AC004309, Z79999, AA626635, AA507452, AA805078, AI039677, AA662136, AA745880, AA722415, AA133371, AA514235, AA946647, AA207200, AA830458, AA083192, AA878427, N63329, AA934449, AA133184, AA402087, AA687770.

AA937256, AA365011, AA731077, AA425201, AA515865, W67861, AA910956, AA182893,
 AA358517, W67804, AA301380, AA652387, AA523222, AA541535, D57347, AA180767,
 AA886161, AA876833, AA928813, AA662099, AA330777, AA512845, D56262, AA809606,
 AA661783, AA904934, AA211880, AA091762, AA305565, AA316768, AA836660,
 AA196815, AA083191, D52197, H16000, AA856607. AA701928, H80862, W446860.

AA815104, AA929000, Al023221, N29511, W69692, AA287349, Al015577, AA427663,
 R26007, AA446792, T61548, W89194, AA913564, Al047710, AA118129, AA914388,
 AA168959, AA797358, AA182992, W08380, AA797490, AA120298, AA403528, AA390161,
 C89465, C79625, AA389343, AA399855, AA881711, AA546057, AA638279, AA200660,
 W10929, AA208053, AA170032, AA823013, AA003544, AA891798, AA799660, Al013191,
 AA893342, AA964549, AA818767, Al043955, AA963593, AA875699, H76320

SEQ ID NO: 211

- 30 M90309, M96256, M90820, D82876, M95123, U62545, AF005383, Z81081, U28379, AC003982, AE000387, U83435, AC004309, U60970, U61238, U69639, U57833, M29192, U10133, U61224, U64849, Z79999, U58751, U10123, U10125, U23170, U10127, U10131, AA662136, AA626635, AA507452, AA805078, AI039677, AA745880, AA722415, D56262, AA425201, AA133371, AA514235, AA946647, AA830458, AA207200, AA083192,
- 35 AA316768, AA180767, AA878427, N63329, AA934449, D52197, AA133184, AA402087, AA083191, AA937256, AA196815, AA365011, AA687770, AA305565, AA731077, AA211880, AA099456, AA910956, AA374550, D54751, AA515865, W67861, AA904934, H16000, AA304018, AA301380, AA330777, AA661283, AA182893, AA358517, W67804, AA652387, AA541535, AA523222, D57347, AA662099, C03243, N88739, AA091762,
- 40 AA886161, AA876833, AA928813, T23842, AA512845, AA809606, AA836660, AA757083, H42504, AA709130, AA815104, AI023221, AA856607, W69692, AI015577, N29511, AA287349, AA929000, AA701928, W46860, H80862, F11745, R20592, H52017, AA215302, AA456142, H43493, AA189120, AA446826, AA913564, H05237, N54811, AA219658, AA768012, R26007, AA631802, T28999, AI040805, T09413, AA828597, T78553, T95232,
- 45 AA040668, AA436121, AA120298, C89465, AA797358, W08380, AI047710, AA914388, AA389343, AA168959, AA118129, AA511602, AA399855, AA182992, AA797490, AA403528, AA390161, C79625, AA881711, AA546057, AA682879, AA200660, W10929, AA208053, AA170032, AA546962, AA968213, C80997, AA823013, AA216978, AA270198, AA217176, AA003544, AA891798, AA799660, AA963593, AI043955, AI013191, AA893342,

OOUSESS ISSISS

AA964549, AA818767, C53849, D73050, T00102, C66801, AA550626, C55468, D34505, D27494, D71359, D33998, C11020, AA893964, AI009719, AA946258, D15421, AA875699, AA926207, AI012274. AI045611.

SEQ ID NO: 212

U33818, U75686, D12799, X57483, M27072, Z48501, Y00345, X65553, AF032896, U68096, X75959, AF001290, AC000374, AL008725, AC002468, Z99571, AE001162, X02868.

- 10 AC002426, U61983, AC002994, AC004654, X97249, M55163, U24491, M62322, AF010151, AC004068, AC004784, U10438, AA158440, AA194420, AA188891, AA486375, R17538, F00298, H18542, T28812, R17340, AA196312, AA196938, F00102, W37521, H25084, Z21267, R17367, T77286, T27011, H08705, AA379415, R96399, W74246, R19420, AA247691, AA312133, AA285253, AA152064, AA361741, AA351480, AA401953,
- 15 AA188750, AA056307, T62784, AA171870, R87216, AA101951, T69963, AA377926,
 AA486626, H65031, H22721, AA091008, T62932, AA373063, W40155, H78922, AA385613,
 H94776, R52413, R56744, H78328, H94769, AA314666, AA303852, AA376845, AA774116,
 W39453, H23386, AA366534, D56258, AA056400, AA318252, AA379760, AA347167,
 R91800, C03993, N56760, H25628, H94770, D82637, AA361546, AA354644, AA180522,
 AA114086, AA313472, F07481, W02399, T26991, AA354673, AA367226, R12837,
 AA368385, AA149671, W19520, T91469, AA165091, H73529, AA382206, AA736555,
 T96776, R85578, AA360664, AA146756, AA517715, AA549198, W45901, AA530373,
- AA068153, AA794203, AA681546, AA543470, AA920538, AA541855, W48104, AA545226, C81574, AI020619, AA545223, AA467691, AA407351, AA080540, AA589633, AA059627, AA293102, AA543952, AA144201, AA413709, AA561318, AA645633, AA041692, AA794553, AA684154, AA855593, AA117203, AA560746, AA655813, AA549355, AA543742, AA672755, AA098209, AA529650, AA217996, AA067786, AA674118, AA065421, AA068210, AA109586, W65980, AA529434, AA473398, AA647192, AA399911, AA572052, AA617584, AA571125, AA688594, W77696, AA537244, AA560874, AA645902,
- 30 W56921, AA473387, AA124214, AA222575, AA473517, AA108250, AA154026, AA051730, AA562058, AA110011, AA546821, AA145742, AA798579, AA789909, AA645194, AA183483, AA638251, AA867607, AA445059, AA607843, AA5530363, C80232, AA921604, AA562884, W70720, W62179, W71834, W65821, AA031045, AA231604, AA562224, AA041626, AA517821, AA717160, AI037666, AA591443, W75448, W62769, AA162363,
 - 5 AA798415, AA681784, AA667343, AI028973, AI030229, H56873, AI007576, W59838, C31022, AA979102, AA698277, AA566362, AA698275, R90213, C34066, C36087, AA680472, D15397, C64582, R86582, R86522, C27111, C36743, C35897, AA566574, C38254, C30288, R86469, AA979898, T43578, AA415121, C72197, C19527, R86465, AA750079, AA193786, R29962, D65527, W23328, AA566423, C55391, C11243

SEQ ID NO: 213

40

U33818, U75686, D12799, X57483, M27072, Z48501, Y00345, U10455, AF032896, X65553, AF001290, X75959, U68096, U68094, AC000374, AL008725, AF043297, U61983, AE001162, AC002426, AC002468, Z99571, AC001645, M62322, AF010151, L19418, U10438, AC004068, U24491, AL021961, L05109, U50065, M38019, X97249, M55163, AA486375, AA158440, F00298, AA196312, AA194420, Z21267, AA188891, R17538, AA453382, AA453284, AA375867, AA171870, AA188750, AA486626, T62784, AA312133, AA247691, R19420,

W74246, AA351480, AA285253, AA152064, AA361741, AA373063, AA056307, AA361546, R87216, T69963, AA377926, AA101951, H18542, T28812, AA2220979, AA319539, H65031, AA384795, H22721, AA380413, AA422010, AA091008, T62932, AI004148, R17340, W40155, AA385613, AA318252, D82637, AA361702, AA382298, AA361898, N86589,

- 5 AA196938, AA367226, AA318103, R85578, AA304761, AA356885, M78295, T66254, AA340702, AA085890, H30431, F13450, T85189, AA360664, AA083991, AA916946, N95514, AA094447, AA146756, AA517715, AA530373, AA068153, W48104, W45901, AA549198, AA794203, C81574, AA675536, AA545226, AA681546, AA413709, AA589633, AA794553, AA645633, AA543952, AA080540, AA920538, AA655813, AA560746.
- 10 AA543742, AA855593, AA059627, AA144201, AA239102, AA041692, AA561318, AA117203, AA684154, AA543470, AA549355, AA541855, AA672755, AA529650, AA098209, AA067786, AA674118, AA217996, AA547472, AA261638, AA068210, AA0065421, AA109586, W65980, AA110011, AA183483, AA162612, W35997, AA638251, C80232, AA571125, AA162363, W62769, W75448, W99071, AA667343, AA033491, W66633.
- 15 AA755612, AA387191, AA692410, AA727586, AA048661, AA051437, AA217183,
 AA386779, AA656576, AA727531, AI028973, AI030229, Z71862, AA684843, H35169,
 H56873, AI007576, W59838, AA439587, AA979103, AA940632, AA735861, AA696026,
 AA390979, AA802472, AA816582, AA538639, AA695329, AA202584, AA696576,
 AA539606, AA539099, AA439983, AA941996, AA949560, AA942271, AA950752.
- AA978967, AA538584, AA979102, AA941013, AA439362, AA940867, AA201233, AA263555, AA698775, AA439514, AA539726, C31022, AA263809, AA948939, AA391644, AA202460, AA951608, AA697265, AA804029, AA801635, AA263953, AA978695, AA440542, AA820598, AA567211, AA441090, AA441331, AA201345, AA803058, R90714, R90213, AA680470, AA698275, AA566362, AI035122, AA698277, D41636, C38254, C53650, C55391, C64582, D15397, R29962, W23328, AA944626, D24277, D41589, R86522, AA680472, AA818616, D24141, D40735, W03989, C27111, AA979898, R86465, D65527, AA819137, D46757, D39435, AA193786, AA566423, C72426, R86469.

30 SEQ ID NO: 214

- U33818, U75686, AF050157, AC004140, X57483, AF032896, M27072, X65553, AF043297, AC004673, X75959, Y00345, AF001290, Z48501, L14644, AF004282, AF038613, AF068865, M97812, Z82068, Z81570, AA876341, AA745823, AA757071, AI016337, AA580267, H97478, AA523769, AI004460, W58446, AA995123, AA906016, N67730, AA218964, W58481,
- AA745487, A1002469, N33241, AA945123, AA900016, N07/30, AA218964, W58481, AA745487, A1002469, N33241, AA946914, R96357, W37536, N21366, N32946, AA158441, AA665959, F72228, AA836484, AA291176, AA196183, R94183, AA761561, H97393, AA632152, C02223, T64875, H97408, AA872007, H18434, AA189107, AA399466, AA575883, D53740, R39560, T27010, T27506, AA192177, T17055, H24885, AA621511,
- 40 Z21262, AA746979, R42720, T30509, T34307, AA293382, AA350071, T89408, N73829, T92004, N70721, AA092470, AA938979, AA847618, AA055563, AA095836, AA715804, T32576, AA486221, H98021, N31316, AA194566, H98034, R94184, Z17346, AA308822, W00872, AA886735, AA301502, AA749059, AA772448, AA824475, AA813387, AA411260, AA411185, W90707, AA553396, AA331013, AA047652, AA675896, T50370, AA729392.
- 45 W60261, H41953, N87739, AA033548, AA431839, W58521, AA007137, AA301744, AA978233, AA746819, AA462194, AA260606, AA008245, AA198212, AA189192, AA240441, AA414348, W98490, AA016494, AA691010, AA623846, AA511096, AA656757, AA675223, Al050266, AA435090, AA466884, AA435437, W10945, AA266895, AA267701, AA266882, AA608041, AA608040, AA407350, W35888, AA543129, W66988, W11964,

AA794417, AA170349, AA710366, AA5605⁹8, AA222621, AA607770, AA117196, AA117197, AA497794, AA655917, AA863935, AA690541, AA050116, AA561346, A1020705, AA267316, AA616897, AA688511, D76926, AA118144, AA575633, AA407008, W57260, W97241, AA499168, AA589023, AA407163, W66681, AA596527, AA591993, AA008270, C80705, AA759821, AA426846, AA474199, AA607312, AA106783, AA759930, AA117944, AA272487, AA434838, C78518, AA409986, AA799716, AA574848, AA216911, W89434, AA139140, AA967240, AA166066, AA560843, W84301, AA569137, AA590504, AA538443, AA596775, W70725, AA242468, AA271319, AA124706, AA271429, AA438185, AA545226, AA517208, W15034, W43967, AA959868, W71912, C76466, AA617221, AA389144, AA799943, AA875662, AA891138, AA891359, AA963788, AA606181, AA605910, AA606211, AA606151, AA566626, R62127, AA893752, A1008277, AA852037, AA945749, AA899385, AA859407, AA926018, AA900233, A1009672, W35650, W43098, U83076, AA850230, AA925882, AA735360, R04551, AA894297, T67354, M89321, C44938, D36988, T20410, R62043, C43025, T15008, AA264836, AA851992, AA899881, AA901370.

SEQ ID NO: 215

DOMESTOND

20

AA850384, C50073, AA996808, AA799495.

AC004673, AF001290, X75959, AF004282, L14644, AF038613, Z82068, Z81570, AA745823. AA876341, AA757071, AI016337, AA580267, H97478, AA523769, AI004460, W58446. AA995123, AA906016, N67730, AA218964, W58481, AI002469, AA745487, R94183 N33241, AA946914, R96357, C02223, N21366, W37536, AA158441, N32946, F22228. AA665959, AA836484, AA291176, AA196183, AA632152, AA761561, H97393, T27506. D53740, T64875, H97408, AA872007, T30509, Z21262, AA575883, H18434, AA399466, AA189107, AA293382, T27010, R39560, AA621511, T34307, AA192177, T17055, H24885. AA746979, AA095836, AA092470, AA938979, R42720, T89408, AA350071, H98021. N73829, N31316, T92004, N70721, H98034, AA847618, AA055563, W00872, AA715804 AA308822, AA194566, T32576, AA331013, AA486221, AA886735, AA772448, AA749059. 30 AA813387, AA824475, AA411260, AA411185, W90707, AA553396, AA047652, AA301502, T50370, Z17346, R94184, W95592, W03576, AA729392, AA462194, AA260606, AA008245. AA240441, AA198212, W98490, AA189192, AA414348, AA016494, AA511096, AA691010, AA623846, AA435090, AA675223, AA656757, AI050266, AA466884, AA266882, AA435437, W10945, AA266895, AA267701, AA608041, AA608040, W35888, W71912, W11964, AA543129, W66988, AA794417, AA170349, AA560598, W66681, AA222621, AA607770, AA117196, AA117197, AA497794, AA655917, AA863935, AA690541, AA050116.

U33818, U75686, AF050157, AC004140, X57483, M27072, AF032896, AF043297, X65553,

AA575633, AA589023, AA407008, AA499168, W84301, W97241, AA967240, AA596527,
AA591993, AA008270, C80705, AA759821, D76926, AA426846, AA474199, AA607312,
W57260, AA759930, AA117944, AA272487, AA434838, C78518, AA409986, AA797916,
AA574848, AA216911, W89434, AA139140, AA166066, AA106783, AA118144, W70725,
AA563137, AA590504, AA538443, AA710366, AA596775, AA271319, AA242468,
AA438185, AA271429, W43967, AA517208, AA124706, AI049037, C76466, AA959868.

AA561346, AI020705, AA267316, AA560843, AA688511, AA616897, AA407163, AA545226,

45 AA409993, AA799943, AA875662, AA891138, AA963788, AA891359, AA606211, AA606181, AA605910, AA606151, AA566626, R62127, AA893752, AI008277, AA945749, AA852037, AA899385, AA859407, AA926018, AA900233, W35650, AI009672, W43098, AA735360, R04551, C43025, AA264836, AA899881, AA851992, U83076, R62043, AA850384, AA996808.

- U75686, U33818, Y00345, Z48501, X65553, D12799, X57483, AF032896, M27072, U10455, M38019, L05109, U68093, AF001290, X75959, U68094, AL008725, U68096, AC000374, U24123, Z50110, AF043297, AE001162, U61983, AC002468, AC002426, AC001645, Z49066, L19418, Z99104, D26185, AL023496, X97051, J04560, X54815, X54547, AJ006158, Z38059, U07228, U34884, AJ006152, AJ006156, U51243, U02604, U49845, AF010151, AA486375, AA375867, AA196312, AA158440, AA453382, AA453284, AA220979, AA319539, F00298,
- 10 AA318103, AA422010, AA486626, AA171870, AA188750, AA361702, Z21267, AA312133, T62784, AA255906, AA361898, W74246, AA247691, R19420, AA373063, AA285253, AA351480, AA361741, AA152064, AA056307, AA361546, AI004148, AA384795, AA358393, R87216, AA377926, AA101951, T69963, N86589, AA248355, H65031, AA091008, AA382298, AA380413, H22721, T62932, W40155, D82637, AA422136, AA318252,
- AA385613, AA194420, T19111, AA367226, F13450, T66254, AA340702, H30431, AA304761, AA356885, AA085890, T19451, AA916946, AA146756, N21835, W76571, AA291606, AA281761, AA987923, AA186762, AA517715, W48104, AA675536, AA068153, AA530373, AA261638, W35888, C81574, AA162612, W99071, AA727586, AA727531, AA545226, AA413709, W35997, AA183483, AA589633, AA794553, AA645633, AA543952, AA080540
- 20 AA547472, D77409, AA756055, AA655813, AA543742, AA560746, AA684154, AA117203, AA059627, AA561318, AA239102, AA144201, AA041692, AA855593, AA549355, AA067786, AA674118, AA529650, AA217996, AA672755, AA098209, W45901, AA549198, AA065421, AA068210, AA794203, W65980, AA109586, AA895401, AA110011, AA795409, AA638251, AA840242, AA644770, AA571125, W75448, W62769, AA217183, AA103034,
- AI028973, AA942271, AA951608, AA979102, AA941292, AA940632, Z71862, AA978967, AA949560, AA948939, AA978577, AA978695, AA941470, AA820598, AA979103, AA950752, AI030229, AA816582, AA539099, AA804029, AA390345, AA439983, AA698004, AA941013, AA538584, AA439362, AA441205, AA940867, AA567213, AA735831, AA263953, AA263555, AA441331, AA802472, AA441090, AA263809, AA438551,
- AA202460, AA539606, AA697265, AA391644, AA698775, AA539726, AA735861, AA440542, AA567211, AA201233, AA390979, AA538639, AA696576, AA695329, AA820079, AA202584, AA201345, AA696026, AA439514, AA802164, AA201654, AA439587, AA803058, AA941996, AA801635, AA684843, H35169, D75214, C62333, D35431, C46263, D35533, C66673, C39459, D35888, D36845, D37554, C39840, C42713,
 C48422, C51205, C40386, C40859, D35317, D36624, C43342, D36210, D36425, C47685.
 - 5 C46422, C31203, C40386, C40839, D35317, D36624, C435342, D36210, D36425, C47685, A1007576, R90714, A1035122, AA660085, C08701, D39435, C49711, D40735, D41636, D46757, C08440.

40 SEQ ID NO: 217

DOWE

-959799

- U33818, U75686, AF050157, AC004140, X57483, AF032896, X65553, M27072, AF043297, L05109, M38019, AC004673, Y00345, Z48501, AF004282, L14644, X75959, AF038613, Z82068, Z81570, AF068865, M97812, AF001290, AA876341, AA745823, AA757071,
- 45 AA580267, Al016337, H97478, Al004460, AA523769, AA995123, W58446, AA906016, N67730, AA218964, W58481, AA745487, Al002469, N33241, R96357, AA946914, W37536, AA158441, N21366, N32946, AA665959, F22228, AA836484, AA291176, H97393, AA196183, R94183, AA761561, AA632152, C02223, T64875, H97408, AA872007, H18434, AA189107, AA399466, AA575883, R39560, T27010, D53740, T27506, AA192177, T17055,

H24885, AA621511, AA746979, Z21262, R42720, T30509, AA293382, AA350071, T89408, T34307, N73829, T92004, N70721, AA092470, AA938979, AA847618, AA095836, AA055563, AA715804, H98021, T32576, N31316, AA486221, AA194566, H98034, R94184, AA308822, W00872, Z17346, AA331013, AA749059, AA411185, W90707, AA553396.

- AA047652, AA886735, AA301502, AA772448, AA824475, AA411260, AA813387, AA675896, T50370, W95592, N30483, Z25226, AA729392, AA033548, AA431839, W58521, AA007137, AA301744, AA978233, W03576, AA462194, AA008245, AA260606, AA198212, AA189192, AA240441, AA414348, W98490, AA016494, AA691010, AA623846, AA511096, AA656757, AA675223, AA466884, AI050266, AA435090, AA435437, W10945, AA266895,
- AA267701, AA608040, AA608041, AA266882, AA407350, W66988, AA543129, AA216911, AA434838, AA166066, AA794417, W89434, AA139140, AA560598, AA008270, AA596527. W66681, AA222621, AA607770, AA499168, AA117196, AA497794, AA050116, AA863935, AA690541, AA117197, AA561346, AA267316, W57260, AA616897, AA407163, AA575633, AA407008, AA759821, W97241, AA688511, AA574848, AA797916, AA967240, AA117944. AA759930, AA607312, AA591993, AA474199, AA655917, AA118144, W84301, AA560843, AA589023, W35888, W70725, C78518, AA409986, AA106783, AA271319, D76926, C80705, AA170349, AI020705, AA426846, AA272487, AA710366, AA563137, AA590504, AA517208, AA538443, W15034, AA596775, W11964, AA242468, AA124706, AA271429, AA438185, AA545226, W43967, AA959868, AI049037, C76466, AA617221, AA389144, AA799943,
- AA875662, AA891138, AA891359, AA963788, AA606181, AA606211, AA605910, AA606151, AA566626, R62127, AA852037, AA899385, AA893752, AA945749, AA859407, AI008277, AA926018, AA900233, AI009672, W35650, W43098, U83076, R04551, AA850230, AA925882, AA735360, AA851992, T20410, T15008, C43025, W43821, AA264836, AA850384, AA996808, R90420, T67354, AA799495, D36988, C44938, C50073, M89321, R62043.

DULKEDES

SEO ID NO: 218

- U33818, U75686, AF050157, AC004140, X65553, AF032896, X57483, AC004673, AF004282, M27072, Z81570, M97812, Y00345, Z48501, AF038613, Z82068, AA876341, AA745823, AA757071, AI016337, AA580267, H97478, AA523769, AI004460, AA995123, W58446, AA906016, N67730, AA218964, W58481, AA745487, N33241, AI002469, R96357, AA946914, AA158441, N32946, W37536, AA665959, F22228, AA836484, AA291176.
- AA196183, H97393, AA632152, AA761561, R94183, N21366, H97408, AA872007, C02223, T64875, AA189107, AA399466, H18434, AA575883, T27010, R39560, AA192177, T17055, H24885, AA621511, AA746979, R42720, D53740, AA350071, T89408, N73829. T34307. Z21262, T27506, T92004, N70721, AA847618, T30509, AA055563, AA293382, AA092470, AA938979, AA715804, T32576, AA486221, AA194566, R94184, AA095836, H98021,
- Z17346, N31316, H98034, AA729392, AA130979, D55392, AA533637, AA715721, AA720553, AA491878, AA417222, AA506606, N31457, AA664970, AA223578, AA598879, W60261, H41953, N87739, R81314, AA033548, AA431839, W58521, AA203481, AA007137, AA301744, AA978233, C06147, R02778, AA746819, AA462194, AA260606, AA008245, AA198212, AA189192, AA414348, AA240441, W98490, AA016494, AA691010, AA623846,
- 45 AA656757, AA511096, AA675223, AA466884, AA435437, AI050266, AA266895, AA435090, AA267701, W10945, AA608041, AA608040, AA266882, AA407350, W66988, AA543129, AA166066, AA008270, AA759930, AA596527, W66681, AA222621, AA560598, AA499168, AA117196, AA117197, AA497794, AA655917, AA863935, AA690541, AA561346, AA267316, W57260, AA616897, AA050116, AA688511, AA575633, AA407008, AA118144.

W97241, AA967240, AA591993, AA607770, AA407163, AA474199, AA117944, AA434838, AA797916, AA794417, AA759821, AA139140, AA574848, W89434, AA216911, AA607312, C80705, AA170349, AA710366, AA560843, W84301, D76926, AA106783, AA589023, AA426846, AI020705, AA272487, C78518, AA409986, W70725, AA545226, AA563137,

- 5 AA590504, AA538443, AA596775, AA271319, AA242468, AA517208, AA271429, AA438185, W11964, AA124706, W35888, AI049037, W43967, C76466, AA959868, AA409993, AA617221, AA895638, AA891359, AA891138, AA566626, AA945749, AA926018, AA859607, AA90233, AA852037, AA899385, AA893752, AI008277, AA606211.
- AA606181, R62127, AA605910, AA606151, AI009672, W43098, AA850230, AA925882, U83076, R90420, T20410, AA799495.

SEQ ID NO: 219

15

ľU

000

U33818, U75686, D12799, Y00345, Z48501, X65553, X57483, AF032896, M27072, U10455, L05109, M38019, U68093, AF001290, X75959, U68094, AL008725, U68096, U24123, AC000374, Z50110, AF043297, AC002426, AC002468, U61983, AE001162, X02868, L19418, AL021961, X97051, AC004784, M62322, U24491, AJ006152, X97249, AF010151, J04560.

- X54547, U10438, M55163, AJ006156, X54815, AJ006158, AC004654, AC004068, AA486375, AA158440, AA194420, AA188891, AA375867, R17538, F00298, H18542, AA196312, T28812, R17340, AA196938, F00102, W37521, Z21267, H25084, AA453382, AA453284, AA220979, H08705, T77286, R17367, T27011, AA319539, AA318103, AA422010, AA486626, AA379415, AA171870, AA188750, AA361702, R96399, AA312133, T62784.
- 25 AA255906, R19420, AA247691, W74246, AA361898, AA285253, AA351480, AA401953, AA152064, AA361741, AA373063, AA361546, AI004148, AA384795, R87216, AA101951, T69963, AA377926, AA358393, N86589, AA248355, H65031, H22721, AA091008, AA382298, AA380413, T62932, W40155, H78922, AA318252, AA347167, AA379760, AA056400, N56760, R91800, C03993, H94770, H25628, AA385613, H94776, R52413,
- 30 H23386, R56744, H78328, H94769, AA314666, AA303852, AA376845, AA774116, W39453, D56258, AA366534, D82637, AA313472, AA354673, AA367226, R12837, AA368385, AA149671, AA354644, AA180522, AA114086, T19111, AA165091, T19451, AA517715, AA549198, W45901, AA530373, AA068153, W48104, AA794203, AA675536, AA681546, AA543470, AA920538, AA541855, AA261638, W35888, AA162612, C81574, W99071,
 - 35 AA727586, AA413709, AA545226, AA727531, W35997, AI020619, AA467691, AA407351, AA545223, AA794553, AA589633, AA183483, AA080540, AA645633, AA543952, AA655813, D77409, AA547472, AA560746, AA756055, AA543742, AA855593, AA144201, AA041692, AA239102, AA059627, AA117203, AA684154, AA561318, AA549355, AA217996, AA067786, AA672755, AA674118, AA529650, AA098209, AA065421.
- 40 AA068210, W65980, AA109586, AA473398, AA571125, AA647192, AA399911, AA617584, AA572052, AA529434, AA473387, AA688594, AA110011, AA546821, AA051730, AA562058, AA108250, AA154026, W77696, AA537244, AA560874, AA145742, AA645194, AA895401, AA867607, AA638251, AA533063, C80232, W71834, W65821, AA041626, AA031045, AA231604, AA662224, AA795409, AA517821, AA921604, W62769, AA840242.
- 45 AA644770, AA717160, AI037666, AA591443, W75448, AA667343, AI028973, AI030229, AA941292, AA820598, AA951608, AA949560, AA942271, AA941470, AA978695, AA979103, AA978967, AA940632, AA948939, AA978577, AA950752, AA979102, Z71862, AA816582, AA804029, AA539099, AA390345, AA440542, AA441205, AA941013, AA202584, AA820079, AA802164, AA940867, AA439983, AA735831, AA439362,

AA263555, AA802472, AA441090, AA263809, AA263953, AA538584, AA539606, AA735861, AA201233, AA391644, AA539726, AA390979, AA695329, AA6698775, AA567211, AA538639, AA441331, AA697265, AA48551, AA6965329, A6698026, AA201345, AA698004, AA202460, AA439514, AA201654, AA567213, AA439587, AA803058, AA941996, AA801635, H35169, AA684843, D75214, C62333, D35431, C46263, D35533, C66673, C39459, C40859, D35888, D36845, C39840, C42713, C48422, D35317, C51205, C40386, D37554, H56873, D36624, C43542, A1007576, D36210, D36425, W59838, C47685, C31022, R90714, R90213, AA698275, AA698277, A1035122, C08701, D39435.

10 SEO ID NO: 220

U41635, AB002806, AC000028, U09408, U48764, AL022121, AC004249, AF018172, L10038, AB005236, J05272, AC004257, AA247483, AA847587, AA301767, AA383537, AA326733, AA447675, T52904, AA311351, Z98470, AA021447, T52905, AA768056, T57573, AA376472, AA326234, AA447825, AA057822, AA300304, T72427, N25082, AA013336, N25068, T07270, AA130927, AA987429, M85690, Z78374, AA308389, W22396, AA847946, AI015097, AA524605, H43007, AA687762, AA866050, R43064, Z38317, AA584325, AA680035, AA481862, AA604446, R38085, AA916929, AA380906, AA865871, R52542, AA723065, AA372660, AI022349, W24213, AA766199, AA939140, AA757640, AA767766, AA427357, AA457735, R77360, H09218, AA314969, AA194706, AA349248, AA703109, AA181002, AA847638, AI042342, T98541, AA157549, AA294833, AA305025, AA346134, AA559108, H78224, AA847752, AA338059, N99459, AA167677, AA346227, AA915977, AA087921, W82707, AA259495, C87724, AA561718, W30641, AA790196, AA016731, AA015169, W83145, AA833185, AA671234, AT000280, AA539360, D46441, C07190,

SEQ ID NO: 221

C48098, C45270, AA098778.

30

45

U41635, AB002806, AC000028, U09408, AC004249, AF018172, AL022121, AB005236, J05272, AC004257, U48764, AA247483, AA847587, AA383537, AA326733, AA447675, T52904, Z98470, T52905, AA768056, T57573, AA301767, AA376472, AA326234, AA447825, AA057822, AA300304, T72427, N25082, N25068, AA130927, AA987429, AA311351, Z78374, AA308389, W22396, AA847946, AI015097, AA524605, AA380906, AA766199, R52542, AA757640, AA457735, AA427357, AA723065, AA767766, AA939140, AA372660, W24213, AI022349, AA338059, T98541, AA305025, AA346227, AI042342, AA294833, AA703109, AA915977, H78224, N99459, H09218, AA157549, R77360, AA559108, AA877752, AA167677, AA349248, AA346134, AA181002, AA847638, AA194706,

40 AA314969, AA259495, C87724, AA561718, AA790196, W83145, AA833185, AT000280, C07190, AA749935, AA539360, C48098, C45270, AA098778, D46441, C24808, AA735750, AA951847, AA965558, AA952847, D48752, AA538571, C09425, D49085, AI045521, H36968, AA756959, C73531, U74137.

SEQ ID NO: 222

AC000028, U41635, AB002806, AB008003, AB004637, AB008004, U91325, AC003675, Z77458, AC004520, X68143, U64609, AF009736, U90028, AA725086, AI022818, AA777556,

- W80633, AA777504, AA772348, AA488436, AA507884, AA909228, W87638, AA576869, AA858010, AA923143, W87639, AA565492, Z98471, AA836268, AA740512, AA600236. AA025446, AI038708, AA888095, AA884036, AA709078, AA780881, AA021448, W51907. AA857736, AA418104, AA405286, AA229590, W78780, AA928537, AA171903, W40580.
- 5 AA600281, AA693593, T86580, AA418006, AA961576, AA130872, AA255431, T48324, AA845232, AA229958, AA886449, AA229456, H68808, AA605105, AA524124, AA902821. AA478858, AA847279, AA923719, AA983917, AA291652, AA987429, R92757, AA491510. AA376598, T54460, AA970238, AA479956, AA559082, AA013242, F17590, AA879092. H68906, AA487566, T57526, AA037271, AA873358, C01029, AA376596, AA988066,
- T86757. AA987454, T48323, AA229231, AA336140, AA376597, W35316, AA485436, W23716, AA364121, AA025464, D79251, R31165, AA196163, AA524605, T24754, AA701171, AA376594, AA229681, AA196291, AA912446, AA364585, AA314071. AA455742, AA353725, AI037001, AI036984, AA142403, AA242672, AA103784, AI006503. AA162689, AA260290, AA274880, AA562859, AA116500, AA509856, AA689953.
- AA553076, AA267303, AA771090, AA395935, AA209939, AA764542, AA856290. AA189943, AA623771, AA209824, AA246017, AA289682, AA920074, AA200743. AA184793, AA546811, Z84196, AA955565, AA819004, AA997860, C26797, AA964402. AA735044, AA818212, AA818816, AA699213, D39769, D21937, D23574, AA676114, W35615, AI012085, AI043801, D39954, AA567379, AA661038, AA676019, AI010262
 - AA651403, C23200, AI012034, AA736167, C27170, AA440511, T70632, C27682.

SEQ ID NO: 223

- AB002806, U41635, AC000028, AB008678, X17698, U70439, Y07969, AL024454, Y07569. U12634, U34777, AF025654, AC004249, AC004318, AC004114, U48764, AB009023, L10038, AB012143, AB005236, AF018172, X68970, AB012142, AB009022, J03975, AC004257, Z49212, J04668, AB005234, J05272, U46025, AB009024, AC004120, AA247483, AA326733, AA847587, AA301767, AA383537, T52904, AA447675, AA311351, AA021447, AA447825, AA300304, AA013336, T72427, T07270, AA130927, AA376472, M85690, Z98470, N25082,
- AA057822, Z78374, T52905, AA768056, AA481862, AA916929, AA584325, AA865871. AA866050, AA604446, H43007, Z38317, R38085, AA687762, AA680035, R43064. AA985188, AA171429, AA622348, AA158538, T61524, AA525505, AA652541, AA191710, AA566012, AA679719, AA165421, AA165584, AA244109, AA244110, AA056602,
- AA465023, AA807725, AA156040, AA301726, AA179228, AA565645, T94834, AA669231. AA766199, R52542, T34213, T27501, AA757640, AA427357, AA457735, AA767766, AA723065, AA939140, W24213, AA305985, AI022349, AA338059, AA194706, T98541. T39129, AA346227, AA915977, N31076, AA703109, H09218, N85861, N99459, AA157549, T24682. AI022293, H78224, R77360, AA167677, AA349248, AA559108, AA181002,
- AA346134, AA847638, AA294833, AA314969, AA087921, W82707, AA259495, AA561718. W30641, AA015169, AA016731, W59606, AA241136, AA671234, AI005955, AA833185. AA920585, AA517901, W36961, AA718256, C85551, AA000810, AA239590, AA052206, AA596717, AA048997, AA637394, AA041758, AA517295, AA171305, AA219992, W12888, AA833183, AA655890, AA066712, AA117176, AA474773, AA499828, AA435261.
- 45 AA726808, AA589213, AA955263, AA848496, AA897810, AA684640, AI008840, AA735790. AI012710, C90564, AA685125, C47184, C48098, C32154, C46092, AT000280, L46458, AA749935, AI046063, N65197, C45270, C09163, AA539360, AA098778, C07190, C47454, AA965558, T13875, T01634, AA392380, R29971, AA952847, D68714, AA538571, AI045521, C24808, C40596, C35231, C73531, D49085, W66334, U74137, C43076, D48752, AA735750,

AA951847, F14689, C29139, H74544, C09425, C24682, D67219, AA887359.

SEQ ID NO: 224

5

25

U41635, AC000028, AB002806, AB008003, AB004637, AB008004, AC003675, U90028, AC004520, AI022818, AA777556, AA725086, AA488436, AA772348, AA777504, W80633, AA909228, AA507884, AA858010, AA923143, AA576869, W87638, W87639, AA565492, Z98471, AA740512, AA884036, AA888095, W51907, AA709078, AA600236, AI038708, AA021448, AA857736, AA418104, AA780881, AA025446, W40580, AA928537, AA836268, AA171903, AA693593, AA600281, AA229590, AA418006, AA961576, AA405286, AA255431, T48324, AA130872, AA229958, AA845232, AA886449, AA229456, AA524124. AA605105, AA478858, AA847279, W78780, AA902821, AA923719, AA983917, AA291652. AA491510, T54460, T86580, AA970238, R92757, AA987429, AA376598, AA559082 AA479956, AA013242, H68906, AA879092, AA487566, AA873358, T57526, F17590. AA037271, C01029, AA376596, AA987454, AA988066, T86757, AA229231, AA376597, W23716, AA485436, AA364121, D79251, AA196163, H68808, AA701171, T24754. AA376594, AA912446, T48323, AA455742, AA336140, AA229681, W35316, R31165, AA025464, AA576355, AA853684, AA364585, AA524605, AA196291, AI037001, AI036984, AA162689, AA116500, AA562859, AA260290, AA274880, AA509856, AA184793. AA267303, AA771090, AA246017, AA623771, AA546811, AA189943, AA395935, Z84196. AA955565, AA819004, AA735044, AA818212, AA818816, C26797, D21937, W35615,

D39954, AA661038, D23574, D39769, AI010262, C11235, C11348, AI012034, C27682.

X78933, X07290, X52356, L32164, M99593, Y00850, X12592, M36514, M15709, AC005261.

SEQ ID NO: 225

C27170, C23200.

AC004696, AC003002, AF033199, U81557, D89928, X78925, AL021918, AC004017, U09368. U66561, X64413, X52533, X89264, M92443, AC002519, L77247, AB010372, S54641, AB007872, X81804, M27877, AL022393, D10627, X16281, D31763, U09367, U57796, U28687, X70394, U37263, U37251, X68011, D10632, AF020591, U88080, M27878, L32163. U48721, M88359, X79828, AF024709, X69115, AF011573, Y10929, X17617, U56862. D70831, M36146, AC003682, X52332, U09852, X78926, AB010373, AL021997, X78931, L11672, L36316, X74855, D45210, X78924, AC003973, X51760, X68684, X78932, AC003006, M36516, L16904, L20450, D10628, S52507, L28802, X69116, U35376, AF027140 M55422, M96548, X73897, Z95704, AF027147, AC004004, Z96138, X73895, L35269. X07289, U69133, AF003540, U78722, X84801, L75847, L15309, AA491488, AA115318. F07386, AA481221, H17858, F05579, AA599717, R88880, R89645, F05578, AA773248, AA295275, AA730306, W68223, AA860989, AA252461, AA418246, AA083811, AI016606, AA476564, H05857, R21372, AA443369, N80080, R08512, H80390, AA088626, W07223, AA130554, AA134518, R97364, AA159900, AA626677, AA984704, M78146, H19309, R95836, T07511, AA665316, AA130717, T07512, N84888, W28368, T56944, AA471338, AA026736, N47183, AA081943, AA354359, AA165008, R70961, AA455712, AA903551. AA324611, N49093, AA330257, AA278662, AA384152, AF026101, AA632636, AA283909. AA427841, H17015, N29327, AA210784, T05813, AA457311, N57019, AA682749, T64207. AA495843, AA974380, H05892, AA161185, AA334780, AA632298, N29001, AA234320, N98899, AA127003, AA214032, W26008, AA046794, AA211186, AA076467, AA176763.

T47250, AA083845, AA635575, AA635567, AA716653, H81495, AA166907, M77976, F07748, AA018330, AA379532, AA456534, W31899, H38307, AA615956, AI043118, AA240059, AA435439, AA612258, AA244987, AI047413, AI035237, AI042916, AA117053, AA189434. AA155283, AA562594, AA797641, AI036166, AA097760, AA044497, AA476109,

- 5 AA896035, W14162, AA799068, W75531, AA239494, AA175620, AA562383, AA409820, AA140301, AA798457, AA799050, AA616580, AA867000, AA562383, AA409820, AA140301, AA798457, AA799050, AA616580, AA867000, AA529691, AA666855, AA098301, AA097579, AA726604, AA839547, AA154311, AA499468, AA271667, AA451420, AA172466, AA117284, AA624111, AA123822, AA981211, AA102943, AA119538, AA172972, AA981587, AA474782, AA666789, W91712, AA104086, AA242194,
- 10 AA427186, AA073347, AA980878, AA414390, AA414083, AA980960, AA122779, AA611311, AA110661, AA738624, AA184177, AA616442, AA764391, AA681464, AA079904, AA155148, AA036225, AA537315, AA444998, AA123106, AA716903, AA930937, AA543731, AA178652, AA285425, AA624117, AA177740, AA896323, AA575639, AI046551, AA920944, AA119762, L26825, AA522401, AA792248, AA667108, AA606643, AA068528, AA087480, AA546639, AA797318, X61884, AA536874, AA999112, H34344, C06870, C06945, H31120, C39828, C83273, AA848430, AA891600, AI030120,
- 15 AA606643, AA068528, AA087480, AA546639, AA797318, X61884, AA536874, AA999112, H34344, C06870, C06945, H31120, C39828, C83273, AA848430, AA891600, AI030120, C82417, AA957915, H34728, AA957859, AA441547, AA965203, AA892221, AA893091, AA550029, AA570906, U19691, AA686274, AA892391, AA497308, H31100, AA605784, AA542644, C66726, AI007760, AI043689, AA440293.

SEQ ID NO: 226

20

X79131, AE000611, X80760, Z68144, AC005212, AA459031, AA641741, AA039315, AA249143, W88763, AA906626, AA907163, AA486150, AA627144, W33121, T99589, AA010912, T99582, AA608979, AA831394, AA988670, AA810777, N32049, N23351, AA011303, AA387753, AA259894, AA230751, AA795844, AA611861, AA175283, AA170563, AA537808, AA624139, AI026540, AI007406, AA842397, AA996566, C84712, AI026541, AA750628, AA549974, AA956255, T37093, AA998117, AA979129, AA952041, AI001407, AA263839, AA946466, AA952243, N38666, T03963, Z25965, AA818739, AA739870, AA689213, H76269, AA701709, D32381, AA042638, AI013505, C21985, AA567067, T04418.

35 SEO ID NO: 227

U61976, U87145, AD000091, AA761721, AA766404, AI026897, AA810879, AA731675, AA490917, AA398748, AA761478, H66030, R91436, AA724571, H71908, H71907, R82263, H66075, H47305, R28259, AA862220, AA393340, N57120, H80421, AA078203, AA234560,

- W01054, AA907169, N76229, R68882, AA282007, W54620, W13987, AA990152, AI047764, AA968343, AA109154, AA273420, AA841045, H77125, N65155, T88352, R89943, T42196, AA818889, H75996, T46234, AA391396, T22676, AA605413, T75727, R90093, AA713001, T21829, T88293, AA956917, H37309, AI012358, T44139, AA712971, W43125, N38623, T76898, Z72419, AA394336, T41804, N37444, C66953, C70896, H76091, T45022, AA998951,
- 45 N65777, C63712, C13094, N97055, N38282, AA067529, T20629, AA695398, C90104, H76347, T88628, T46514, AA439518, R90522, N65609, N65553, R04449, T04713, T44937, C69200, T44234, N37443, R29927, T76221.

SEO ID NO: 228

U72149, Z49308, AP000002, M31431, Y10854, Z79429, D90223, D12686, AF012088, Z48244, AC000097, AB005297, AB009484, U39696, U01694, W73345, AA884998, W32183. AA211437, W73514, H87789, AA910426, D81990, AA463817, AI025900, AA074995, N63023, W01775, N79274, W84869, T77957, R25694, T85644, AA150473, T74453, AA044942, M62195, H10187, Z25139, R12167, F05247, AA690101, AA726818, AA184412. AA681116, AA867335, AA432923, D39338, T37604, H35717, AA712694, D76146. AA803322, AA849833, Z84046, C88431.

SEO ID NO: 229

U50871, Z68873, U96409, AC002123, Z97198, AF064862, Z49862, AC004006, Z85997. AL008713, AF064865, Z85998, AL020991, Z83821, Z75741, AC004014, Z73986, Z82975, AF020803, AC004027, Z93018, AJ229041, AC004535, AF015720, AC003692, Z81365, Z70225, Z68871, AC004459, AC002381, Z70758, AC000389, Z83850, AC005201, AC002086, M68841, AF068624, AF027390, Z76735, AC002067, Z92547, Z94055, AC002065, Z71182, Z84814, Z97181, AC004081, Z84720, AC003086, AC004711, U63313, AC003013, Z82203, U82828, AL022069, AL008633, AC000112, Z80362, AC005248, AC004035, AC002367, Z82211, U95737, AC000127, AC004097, AC003083, AP000016, AC002458, AC004746, AC002981, Z94721, U91324, AC003666, AC002056, U59962, AC002386, U96629, AC002456, AC003977, Z80107, AC004744, Z81009, Z79699, Z92543, AC002122, AC003051, Z82196, Z83313, AF002994, AC004467, AC002106, U93573, AC002461, AC002366, AC004140, Z82216, Z84816, AC002430, Z82253, M69297, AA148366, AA564135, AA825623, AA481622, AA564249, AA558463, AA975182, AA622590, AA167264, AA622951. AA203220, AA558786, AA610250, AA085706, AA211212, AA342132, AA760657, AA808692, AA776667, AA736469, AA503117, AA584730, AA179264, AA172331, D57327, H03599, AA179891, AA714581, AA501789, R57964, R14820, AA432115, T07300, 30 AA131481, T07174, AA446799, F07093, AA179658, AI017582, U81226, AA553460, AA551506, AA349831, AA551156, T60595, N44646, AA483270, AA742857, AA768268, F09295, AA654792, AA381013, AA550746, AA719829, AA714455, AA632675, AA252301, AA704567, AA551038, AA493615, AA372560, AA493771, AA610148, AA425144, AA375960, AA564149, AA713837, AA501474, R11143, AA505003, AA505014, AA577804, AA484141, T51061, AA501642, H82631, N20799, R14500, AA993034, AA226681, T07829, AA811843, AA879004, R48661, N23244, AI024916, T06551, AI002981, AA552255, AA808887, N80414, AA559101, AA148747, AA975124, AA905240, AA167491, AA598888, AA331911, AA810853, T49629, C77906, AA038811, C87904, AA562235, AA241049, AA120178, C88029, AA153558, C78452, AI048791, AA184976, AA208915, AA930041, C86095, AA068179, AA386476, AA107124, C91585, C08926, C47186, Z97827, H31388,

SEQ ID NO: 230

45

U41740, U31906, X82834, AF051357, M16515, AE000665, AE001146, U26270, Z84719,

F13837, C43599, C40509, C39935, D27031, T12954, C06676, AA186207, T03971, AA875516.

S82456, Z70287, AL022242, Z98552, Z49219, M23122, U20618, Z68908, AC005142, Z84483, Z77752, AC002088, AA354916, AA132579, AA176462, T10747, AA814649, AA828786, T56781, H59845, AA487386, AA572915, AA663121, A2039814, T99024, H19980, AA449129, AI025081, H22694, AA609180, AA210834, H45056, AA836120, AA777526, R89114, H96569,

- 5 AA380500, C77480, AA647230, AA590640, C78605, AA612362, AA77326, R89114, H99505 AA380500, C77480, AA647230, AA590640, C78605, AA612362, AA538073, AA144000, AA177258, AA512069, AA982370, AA017993, AA960228, AA177288, AA153926, W63975, W82286, AA799039, AA276817, AA389921, AA550313, AA825078, A1014236, AA566591, AA696643, AA924237, D47512, AA924658, C71745, AA547772, C61373, AA404942, N97854, AA824886, AA964643, C32229, C24783, C33070, AA787333, C26667, AA550200,
- 10 AF064466, AA041141, C26717, AA892224, AI043458, C28792, H07456, C92480, AA605507, C33265, D37649, AA395246, C61288, AA784068, AA042290, F13833, AA956701, AA893374, AA430867.

15 SEQ ID NO: 231

X82834, U41740, U31906, AF051357, AL021918, L42230, X92669, Z35595, Z77655, M31076, Z68748, U61835, X55713, U63323, Z21677, U76113, U79415, U95052, U39854, U76111, 298941, L40157, U32274, D49525, X78998, U76112, U73824, X89713, N20922, AA393058, AA936202, N33249, AA779873, AA460981, H99182, H95236, R64018, AA865345, T91725,

- 0 AA626910, R81347, AA412101, AA872172, N43733, R32081, R63927, R80281, R21240, R80183, D20844, R21241, R81603, R22854, R22853, R32028, H02205, M85542, C16145, C18105, C16050, H95283, N41964, AA889169, N33068, R96076, AA707136, AA4832159, AA948070, W57757, AA699720, H82741, R49475, N21348, W94140, AA890361, H86539, A1027352, N24075, AA744829, A1025218, W32532, N48597, AA602610, N67665, N37033, N8597, N8
- N26036, AA704780, AA872211, AA481759, AA053712, AI042486, N98230, H38681, N25537, AA492013, AA564876, AA665638, AA887102, T33836, AA017487, AA164767, C75216, AA653661, AA857021, R24534, H99749, N35081, W60985, AA586503, AA598522, AA600046, AA629522, AA773262, T56913, T81283, C05590, AA150706, AA329155, AA483385, AA644112, AA661586, T33531, AA774275, AA359475, AI017753, AA063117,
- 30 AA960654, AA177806, AA734454, AA109493, AA407935, AA529400, AA667098, C79193, AA145323, AA620126, AA981910, AA200736, AA145143, AA543391, AA123214, AA117863, AA286273, AA623034, AA413653, AA888965, AA407743, AA221695, AA690053, C88301, AA623056, AA684519, AA617129, AA450604, AA145084, AA467457, AA146155, AA416288, AA529856, AA259733, W36213, AA590407, AA590191, AA473132.
- 35 AA499314, AA529605, W09721, AA408503, AA434785, AA882043, C87444, AA118649, AA997635, A1045690, AA988942, D70945, A1009435, A1009369, AA849692, AA849333, AA945711, AA955399, AA899132, AA859186, AA660479, AA660469, C56840, AA891066, D75119, A1029034, C67494, R86825, T76252, AA585797, D64807, AA801762, AA736067, AA897947, C26259, AA803788, D67739, AA696790, AA695900, C83895, AA816766.

SEQ ID NO: 232

40

X82834, U31906, U41740, AF051357, AL021918, Z93374, Z68748, U61835, M31076, X92669, Z35595, Z77655, Z21677, U79415, Z00044, U73824, X52874, X90650, X07675, U76112, U32274, X89713, U76113, X15901, U95052, X68322, U63323, L40157, U76111,

25

X78998, D49525, Z98941, X55713, U39854, N20922, AA393058, AA936202, N33249, AA779873, AA460981, H99182, H95236, AA865345, T91725, R64018, AA626910, R81347, AA412101, AA872172, N43733, R80281, R32081, R63927, R21240, R80183, D20844, R21241, R81603, R22854, R32028, H02205, R22853, M85542, C16145, C18105, C16050, H95283, N41964, AA889169, AA948070, R96076, N48597, AA707136, N33068, W57757, AA699720, AA832159, N21348, W94140, AA872211, AA890361, AA744829, W32532, N24075, H86539, AI025218, H38681, H82741, AI027352, N67665, N37033, N26036, AI042486, R49475, AA704780, N98230, AA481759, AA053712, AA602610, AI022119, T33531, T33836, R24534, H99749, AA329155, AA492013, AA564876, AA773262, N35081, AA014277, AA589522, AA600046, AA64112, AA636161, AA61866, AA773275,

10 AA017487, AA598522, AA600046, AA644112, AA653661, AA661586, AA774275, AA857021, N67362, C05590, AA586503, AA150706, AA359475, T81283, C75216, AA063117, AA483385, N25430, AA164767, N91156, AA156272, Al0177753, T87844, AA960654, AA177806, AA734454, AA109493, AA407743, AA838965, AA221695, AA286273, AA408503, AA200736, AA499314, AA529400, AA620126, AA623056, AA416288, AA543391, C79193, AA407935, AA259733, AA117863, AA981910, C88301.

AA590191, AA450604, AA623034, AA684519, AA145323, AA145084, AA667098, AA617129, AA146155, AA123214, AA467457, AA529856, W36213, AA690053, AA590407, AA473132, AA145143, AA529605, AA413653, AA413915, AA434785, C87444, AA118649, A1045690, AA997635, AA998942, D70945, AA849692, AA849333, AA945711, A1009435, AA955399, AA899132, A1009369, A1029034, AA859186, C56840, D75119, AA891066.

D46956, N61767, C67494, AA787174, D64807, AA585797, R86825, T76252, AA736067, AA801762, AA897947, AA803788, D67739, AA786644, C83895, AA695900, AA816766, AA696790, C26259.

A696790, C26239.

SEQ ID NO: 233

U41740, X82834, U31906, AF051357, Z73506, U78774, AC002527, X96770, AC004152, AL021327, AE000183, Z68284, U52112, D90718, D90719, Z70049, Z68193, U63721, AC004084, AC004769, U90094, AC001226, AC002303, Z97988, U88311, Z48618, U91321, AC000373, Z68273, U82672, Z72001, AL023802, AC004000, AC004653, AC004149, AC005266, AC000095, U63313, Z97055, AC004792, AC002350, Z94056, Z81136, U73167, Z80115, AL022396, AC004778, Z69792, US8675, K00060, Z72685, X58824, AC004598, AF047825, U81833, U78027, AD000092, AP000043, Y12773, AC001643, AL031005, AC002302, AF024533, AC002252, X94226, U62293, U51587, AC004513, AC002456,

- 35 AC002302, AF024533, AC002522, X94226, U62293, U51587, AC004513, AC002456, AC004678, AC003692, AC004216, AC003104, U80764, AF001552, Z72684, U21051, AC004525, AP000015, AC003969, AC002319, AC004258, AC002365, AA652247, N24465, N27783, N41964, AA357510, AA887286, AA642632, R80281, R81603, H95283, AA533718, AA244445, AA460200, R44616, AA644545, R67777, AA035603, AA449740, AA424029,
- 40 AA486555, W93200, R42597, AA890452, R67756, T79593, AA290873, AA653164, AA192147, AA847177, AA634264, AA809963, AA461084, AA565270, AA834582, AA507180, T69524, AA985090, AI003151, H69626, AA772402, AA255722, AA605121, AA987194, AI039085, AA703051, AA953929, AA630127, AA601180, AA765122, AA713761, AA550845, F04900, T62484, AI039232, AA338318, AA218835, C15778, AA165065,
- 45 AA227713, AA513780, R95060, R83402, H66328, D82325, N59570, D83918, C15060, AA427968, AA604201, H47228, H47539, H69236, AA224938, AA443491, AA502237,

DOMESTAR

35

AA640686, AA669548, AI040487, T27166, T99089, R08004, AA229986, AA230159 AA287495, AA362707, AA177154, M78092, T82953, H93283, AA661761, N22943, AA476395, AA552989, W45688, AA583129, AA622179, AA825906, AA197476, AA461759 AA009086, AA276443, AA146097, W09721, AA152629, AA153732, AI048715, AA109493.

5 C85377, AA469653, AA038354, AA892746, C82723, C83579.

SEO ID NO: 234

- X82834, U41740, U31906, AF051357, AL021918, Z93374, L42230, Z68748, U61835, Z77655. X92669, M31076, U76111, X15901, L40157, X07675, D49525, X78998, U95052, U76112, AF051547, U39854, U63323, Z98941, X89713, U79415, U76113, Z00044, X90650, Z21677. U73824, X68322, U32274, X55713, AA393058, N20922, AA936202, N33249, AA779873. AA460981, H99182, R64018, H95236, T91725, AA865345, R81347, AA626910, AA412101. R80281, R32081, AA872172, N43733, R21240, R81603, R63927, R80183, R21241, H02205, R22853, D20844, R22854, R32028, C16145, M85542, H95283, N41964, C18105, C16050. N24465, R49475, AA872211, H86539, AA602610, H38681, AA744829, N24075, AI025218. AA704780, AI042486, N37033, N67665, N98230, W57757, R96076, AA889169, N33068. N48597, AI027352, AA707136, AA948070, AA699720, W32532, AA053712, AA481759. H82741, AA890361, AA832159, N21348, W94140, N26036, N64169, N69808, AA152414.
- AA150808, AA826634, AA608693, AA664381, AA729796, M85323, W04704, W45455 AA132690, AA747487, AA873403, AI003070, N34491, N62152, N62798, N91265, AA173949. AA232135, AA489502, AA530875, AA746888, C75065, AA889249, T34029, AA541351. F07116, AA604724, AA177806, AA960654, AA734454, AA109493, W09721, W36213, AA408503, AA450604, AA145143, AA145084, AA146155, AA467457, AA667098.
- AA690053, AA529400, AA473132, AA123214, AA590191, AA529605, AA413653. AA617129, AA529856, AA259733, AA543391, AA145323, AA117863, AA981910, C79193. AA499314, AA407935, AA200736, AA590407, AA407743, AA286273, AA838965, C88301. AA623056, AA620126, AA416288, AA221695, AA684519, AA623034, AA434785.
- 30 AA882043, AA118649, C87444, AI045690, AA997635, AA998942, D70945, AA945711. AA849333, AA955399, AI009435, AI009369, AA899132, AA849692, AA891066, AI029034, D75119, C67494, AA859186, C56840, N97217, AA801762, AA803788, AA897947, D67739. AA695900, AA471664, AA816766, N61767, AA696790, AA786644, C26259, AA736067. AA787174, T76252, D64807, AA585797, R86825.

- U41740, X82834, U31906, Z75536, AC004029, D10543, J05448, Z80107, AJ003067, X07052. S37449. AJ224144. AJ224143. D10457, AL008735, X07051, Z81001, Z36989, AA399685, N47087, W60925, AA029887, AA149524, AA937362, N78320, AA836050, N62088, C17952, AA910195, AA055214, AA826888, W07158, AA157092, AA987986, AA594364, AA664448, AA053558, W24009, R52958, F11272, AA781110, Z45084, AA827538, T80377, T08454. R15196, AA961173, R13116, T33921.
- AA144704, AA673452, AA118181, AA423734, W66923, AA003241, C33050, C58495. AA118229, AA859504, AA392158, AI050191, C50519, AA952594, T04424, C53405,

AA887351, AA232022, C46064, N97682, C67730.

SEO ID NO: 236

52Q 12 110.23

U31906, U41740, X82834, Z98755, S43653, AC002123, AC000057, AC004533, X17354, AC000022, Z78603, Z97338, AC004468, AL022727, AC002064, L03534, U73639, AA610820, AA508786, AA132892, AA176731, AA481230, T28759, AA220245, W63554, T47910, R59658, W40366, T64813, AA382641, D81632, AA319696, AA282035, AA676689, Z45290, AA009607, H09636, N76049, AA869262, AA521593, AA542298, AA823606, AA275141, AA242651, AA796842, AA929191, AA693189, AA681525, AA879926, AA519018, AA413292, AA545157, AA873945, AA117839, AA734976, AA546409, AA182272, AA174520, AA794821, AA177573, AA870598, AA536935, AA517121, AA414354, AA409394, AA032544, A1044357, T43218, T37212, AA495416, C22529, C48660, C46705.

AA409394, AA032544, AI044357, T43218, T37212, AA495416, C22529, C48660, C46705, AA660392, F14001, AA898596, AA658639, AA901143, C32906, C25682, C58279, Z29892, AA167882. H77124, AA394618, AA246553.

SEQ ID NO: 237

U31906, X82834, U41740, AF051357, AL021918, Z35595, Z77655, U61835, X92669, U39854, U76113, U63323, X89713, Y08256, D49525, X55713, U76111, U79415, U95052, X78998, Z98941, U32274, U73824, Z21677, AJ000083, U76112, L40157, N20922, AA393058, AA936202, N33249, AA779873, AA460981, H99182, H95236, AA865345, T91725, AA626910, R81347, R64018, AA412101, AA872172, N43733, R63927, R80183, D20844, R21241, R21240, R22854, R32028, R32081, M85542, R22853, C16145, C18105, R80281, C16050, R81603, H02205, N41964, H95283, N33068, AA699720, N48597, AA707136, H82741, N21348, AA832159, AA890361, R49475, AA872211, H86539, AA602610, A1027352, AA481759, AI025218, N98230, N37033, N67665, W32532, W94140, AA744829, AA053712, AA704780, W57757, A1042486, H38681, AA889169, N26036, R96076, AA948070, N24075, AA644112, AA661586, AA774275, T87844, N32578, AA017487, AA063117, AA483385, AA887021, N25430, N91156, AA397651, F22408, AA601531, AA653118, AA730562, A1003166, AI050953, T31459, R15138, AA156272, N32816, AA128834, AA152414, AA653661, AA150808, AA213723, AA489469, N67362, AA723193, T04967, C06330,

- 35 AA680267, AA826634, F18699, AA960654, AA177806, AA734454, AA109493, AA590191, AA684519, C79193, AA416288, AA617129, AA623034, AA286273, AA529856, AA145233, AA407935, AA407743, AA53931, AA123214, C88301, AA117863, AA590407, AA221695, AA620126, AA667098, AA690053, AA529605, AA413653, AA529400, AA259733, AA200736, AA145143, AA145084, AA981910, AA499314, AA408503, AA623056,
- 40 AA146155, AA467457, AA473132, AA118649, AA434785, AA882043, AI037745, AI006368, AA178352, AA221215, AA867811, AA960652, AA409857, AA797975, AA547258, AA197890, AA574968, C78959, AA997635, AI045690, AA998942, D70945, AA899132, AA955399, AI009369, AI009435, AA849692, AA849333, AA945711, C67494, AA891066, AI029034, AA859186, C56840, D75119, AA816766, AA695900, AA801762, C83895, D64807,
- 45 AA696790, AA585797, AA736067, AA850362, AA803788, C26259, AA850361, AJ225449, D67739, AA897947.

SEO ID NO: 238

- X82834, U31906, U41740, AF051357, AL021918, X92669, Z35595, M31076, U61835, S Z77655, X89713, U61261, Z68748, U73824, Y08256, U76112, X52874, U79415, L40157, U39854, X78998, U76113, D49525, U32274, X55713, U63323, Z21677, U95052, U76111AA936202, N20922, AA779873, N33249, AA393058, AA460981, H99182, H95236, AA865345, T91725, AA626910, R81347, AA412101, AA872172, N43733, R64018, R63927, R80183, D20844, R21241, R22854, R32028, M85542, C16145, R21240, C18105, C16050,
- 10 R22853, R32081, R80281, R81603, H02205, N41964, H95283, AA948070, N48597, N33068, AA832159, H82741, AA872211, R49475, N21348, W94140, AA602610, H86539, H38681, W32532, AI025218, N24075, AA053712, N37033, N67665, AA704780, AA890361, AI027352, AI042486, N98230, W57757, AA889169, AA744829, R96076, AA707136, N26036, AA699720, AA481759, R15138, N25430, N32578, N91156, AA128834, AA156272,
 - AA601531, AA653118, T04967, T87844, N32816, F18699, N64169, N69808, AA150808, F22408, AA489469, AA723193, AA729796, W45455, AA730562, N91265, C06330, AA213723, AI050953, AA397651, AA541351, C75065, AA152414, AA680267, AA747487. AA826634, AA889249, AA873403, AA960654, AA177806, AA734454, AA109493, AA408503, AA407743, C79193, AA467457, AA529400, AA146155, AA416288, AA259733, AA145323, AA684519, AA145143, AA221695, AA499314, AA690053, AA407935.
- AA413653, AA617129, AA145084, C88301, AA200736, AA667098, AA529856, AA529605, AA451328, AA123214, AA981910, AA620126, AA623056, AA623034, AA590191, AA543391, AA473132, AA117863, AA286273, AA590407, AA413915, AA118649, AA434785, C87444, AA178352, AA960652, AA797975, AA146410, AA146428, AA197890, AA867811, AA547258, AA574968, C78959, AA221215, AI037745, W09721, AI006368, AI045690, AA997635, AA998942, D70945, AA955399, AA899132, AA849662, AI009369, AA849333, AA945711, AI009435, AA859186, AI029034, AA891066, C67494, C56840, AA695900, AA696790, C83895, AA585797, AA803788, AA736067, C26259, AA897947.

SEO ID NO: 239

AA801762, AA816766.

- X82834, U41740, U31906, AF051357, AL021918, X96770, AC002527, Z93374, Z73506, S U78774, D90718, AL021327, AC004152, Z68748, U61835, L42230, M31076, AE000183, Z77655, X92669, Z35595, U52112, Z68284, D90719, Z99129, AC004792, X52874, Z81136, Z94056, Z21677, U63313, AP000043, U52951, AC004084, AC004216, AC003969, U76113, AL031005, U51587, X94226, AC002302, U76112, U95052, X95653, X90650, Z68273, AC003104, Z00044, Y08256, U63323, AC000373, U21051, AC003692, U76111, Z48618.
- AC004525, U39854, AC005266, Y12773, AC003048, U81833, AC000095, Z70049, AF047825,
 X78998, U90094, D49525, K00060, X58824, AC004598, U73167, U78027, AC004769,
 L40157, AC001643, U79415, Z72685, U91321, U73824, X07675, N20922, AA393058,
 AA652247, AA936202, N24465, N33249, AA779873, AA460981, H99182, N27783, H95236,
 R64018, AA865345, T91725, N41964, AA626910, R81347, AA412101, AA872172, R80281,
 R32081, N43733, R63927, R81603, R21240, R80183, D20844, R21241, H02205, R22854.
- 45 R32081, N43733, R63927, R81603, R21240, R80183, D20844, R21241, H02205, R22854 R32028, R22853, M85542, C16145, C18105, C16050, H95283, AA357510, AA887286.

nousee.cspron

20

AA642632, R49475, R96076, H82741, AA890361, N21348, W94140, AA872211, AA460200, AI042486, N33068, AA889169, AI025218, H38681, AA744829, N67665, W57757, AA533718, AA481759, W32532, AA832159, H86539, AA602610, AA699720, AI027352, N37033. AA704780, N24075, N48597, AA707136, AA948070, N98230, N26036, AA053712. AA244445, AA550845, AA765122, AI017753, H99749, AA152414, AA190580, AA601531. AA713761, AI003166, AI050953, T33531, F18699, N25430, N25537, N91156, AA653661, AA632608, T62484, AA644112, AA083657, AA665638, AA987194, AA156272, AA329155 C75216, AA197476, AA461759, AA276443, AA960654, AA177806, AA009086, W09721, AA146097, AA152629, AA734454, AI048715, AA153732, AA109493, C85377, AA469653. C79193, AA467457, AA692865, AA432701, AA620126, AA146155, AA408503, AA200736. AA145084, AA981910, AA529856, AA221695, AA690053, W36213, AA259733. AA450604. AA617129, AA543391, AA667098, AA623034, AA110451, AA145143, AA623056, AA145323, AA413653, AA529400, AA499314, AA684519, AA123214, AA117863, AA838965, AA473132, AA529605, AA407935, AA286273, AA590191, C88301, AA416288, AA407743, AA590407, AA882043, AA038354, AA118649, C87444, AA434785, AA997635, AI045690, AA998942, D70945, AA849692, AA955399, AA849333, AI009369, AI009435. AA964767, AA945711, AA899132, AA891066, D46956, AA892746, C56840, C67494.

AA859186, C82723, C83579, AI029034, N61767, D75119.

SEQ ID NO: 240

AC003974, AC004681, U49436, U22383, AC004044, Z75711, Z83105, Z92847, J05258, M18818, AC004784, AF003137, J03998, Z81037, X62534, AE000790, X94183, U40837, M83665, Z75530, X96770, Z97338, D86405, Z75190, X15965, Z78012, AF013293, AL008709. AL010247, M29366, Z17240, U47009, D87445, AC004679, AC004610, M34309, Z73514, U22451, L10986, Z70307, D50678, AC004641, AA488937, H91281, H13953, AA488860, U66680, T84930, AA348546, AI033691, W20125, AA766268, AA676506, AA455260, AA669443, AI016748, AA514527, AA594506, AA927484, AA465641, AA280785, AA112679, AA534892, AA864182, C02000, U66672, T52063, W72084, AI022067, W60824, AA355440, N85861, H14421, D54216, AA580516, N85718, AA453572, AA936958, AA115366, AA583543, AA857352, AI025354, AA296993, Z39747, Z42251, AA469426, AI049628, AA564289, W88652, AA541325, AA577099, AA173182, H44173, AA730547, AA938221, W35220, AI027945, R66803, N52377, AA447940, AA115143, AA989249, AA384314, 35 H40132, AA974398, N24259, AA730906, AI027336, AA978016, AA555064, AA581982, AA573808, AA730329, AA829123, AI026739, AA226708, AA470940, AA181983, AA165148. AI031708, AA868807, AA913828, H41695, AI017209, AA243337, AA664947, AA527284, W07111, AA446617, AA707299, AA641308, AA626200, AA969113, AA977560, AA444646, AA759637, AA414743, AA475628, AA921663, AA794966, AA547558, AA913969,

- 0 AA197970, W14297, W97059, AA674333, T42196, T88646, N65155, R89943, T88321, T76015, H77125, H76836, T45767, D71919, AT000266, Z30469, AA280453, Z26570, C40572, T22504, AA566286, D74603, R95510, AA605935, D48803, AA785360, AA167895, T42810, AA566644, C55866, Z47407, H33666, Z34086, AA739922, T37694, R62003, AA879381, C90299, A1028921, R30419, T42287, H76786, W43682, D46739, AA549907, AA555403.
- 45 C43269, T04097, C47161, D67769, AA712800, D36501, D72348, Z29196, D43523, D42364, Z33946, AA898732, T14148, N98073, D72527, Z35049, AA167896, AI011733, C34075,

AI044036, AA532328, T42192, D73146, C28198, D66467, W05891, T38712, T22899, AA141398, T22427, T88557.

5 SEQ ID NO: 241

U43400, AF037218, AC000123, Z70224, Z99281, AC000127, Z74739, D14635, Z80107, U13614, U30248, X00417, AC004629, AF039037, Z35719, AL022148, U40160, Y12024, Z71265, U49940, AP000013, N22346, C16161, AA614449, AA825833, R34425, AJ003377,

- 10 AA485723, AA811296, H22076, T10296, F01547, T15374, H28578, R40139, AA258311, AA169849, R53061, AA400820, H18505, AA417900, R66443, H07888, H08856, AA826266, H49161, AA024588, AA609086, T40888, AA134908, AA805008, AA878910, W00532, AA255802, AA576716, AA411991, AA741334, AA758279, AA896325, AA982953, AA109004, AA030787, AA208502, L26671, AA795994, AA061258, AA137576, AA174980,
 15 AA797841, AA684295, AA600584, AA142502, AA726442, AA919576, AA560121, AI007250,
- 15 AA797841, AA684295, AA600584, AA142502, AA726442, AA919576, AA560121, A1007256, AA300519, AA855488, AA718092, AA414300, AA871414, W82197, AA560836, AA050501, AA409021, AA591369, AA795852, AA544179, AA137816, W14055, AA823952, C32788, D36052, C11655, C61888, D68462, C37208, C32936, AA012663, C61404, T00765, C38378, C28434, Z47062, AA900826, C23840, H35908, C91267, AA161734, AA294228, W36335.

SEQ ID NO: 242

AB011182, AC003009, AC002291, M90531, U12891, D87026, U33007, Z81537, Z78420,
 AL023781, AC000081, U23518, AC000072, AF000571, U49431, L77569, AC002403, U89364,
 AE000749, X61590, Y00822, M94081, AC000377, AF051426, Z49218, AA010836, N52145,
 AA011013, AA019431, R85665, AA016056, R85648, AA058678, AA021571, AA177094,
 AA984795, H88615, AA808210, T27140, C21245, AA014072, AA096922, AA870423,
 W16400, W10906, AA793805, AA420126, AA644830, C25692, C49392, C26648, C26279,
 C26632, C26656, C26745, C28591, C13946, D24272, AI030331, C59455, AA957665, D36588.

SEQ ID NO: 243

35

- AB011182, Z83109, AC002448, Z46935, Z98981, AC004022, AL021026, Z50177, Z35641, X05659, AC003105, AF064861, AL021488, X14735, AF043706, X55026, AC002069, Z15124, Z66520, AC005247, U49102, AC004537, U28941, X15087, X06544, Z81513, X91218, M37083, U66820, AA888926, AA680329, AA857253, H02915, AI015118, N22080, AI039206, AA953973, AA016111, R84685, R76568, R84707, H28472, N75868, R33103, R84949, AA604416, AA058782, T54671, H95551, AA011115, R31662, AA449595, H03822, T54758, AA020805, D62124, AA913581, X85615, R33200, R79646, X85616, AA169479, D79415, H89588, AA257022, AI039705, T29455, AA654177, AA384147, AA479375, AA489078, N57541, AA256375, AA578458, AA160174, AA488831, AA807257, AA8043964, AA043964,
- 45 AA888142, AI049785, AA733156, AA552139, AA904213, AA729569, AA902548, AA767777, AA617680, T87422, AA984457, H45499, AA479280, AA506351, N64576, AA129434,

40

10

AA148518, AA506418, AA730503, AA768639, AA952956, AI015843, R62147, AA641864, AA330027, AA398752, AA708611, AA922221, W71635, AA797709, AA733664, C79168, AA675429, AA895131, AA023580, AI010275, AI008085, AA965923, H39492, AA246106, AI029544, AI043846, D64629, D27115, T46146, D33963, D27113, D64994, C23500, D65246, S W84915, C84049, AA819647, D73030, C48494, C83952, D71371, D27346, D71047, D40524, AA559819, AA925305.

149

SEO ID NO: 244

X61693, Z65486, L31959, AE000713, D16512, D11100, L22431, D88268, U21863, AC003019, D86993, L20470, D16494, M33558, D87001, U40188, AC004641, AP000037, D16493, S73849, AA375966, AA251647, AA374591, N28647, N40395, AA191252, AA300607, AA721028, N92231, AA603510, AA602225, H49915, AA338853, AA096090, AA255805, AA155805, AA827994, AA486134, AA256420, N27102, AA031715, N67289, AA463608, AA948180, T74390, AA047711, AA485967, AA935233, W39681, AA369893, AA868164, AA903479, AA177706, AA230649, AA796829, AA230653, AA060909, AA798495, AA276689, AA501147, AA435082, C78879, AA759697, AA509649, AA065451, AA003244, A1019180, AA003106, AA437582, AA791172, AA184719, AA675604, AA030678, AA600661, A1007208, AA536698, AA689780, AA711685, T46035, R29770, AA586201, A1013450, X92798, AA998804, T02730, AA620258, AA739870, AA545862, T43867, T75863.

SEQ ID NO: 245

U48399, AC004069, AB013393, AB006705, AF025422, U41549, U41028, X13978, AC003681, AA805342, AA159599, AA443025, AA456296, AA700508, AA236843, AA251536, AA236795, AA236797, AI034417, AA635725, AA620854, AA129814, AA131387, AA129815, AA582531, AA193399, AA923065, AA456693, AA150935, AA479208, H67391, T83215, AA193492, AA873197, AA032273, AA337925, AA453177, H67445, H61147, AA814955, AA479561, AA477401, AA437337, AA742281, H18470, N83277, AA747452, AA935529, H69930, AA923118, T49591, F19112, N63787, H79380, AA068654, C81358, AA407237, AA073741, AA241101, AA423396, AA981401, AA218317, AA423372, AA596315, AA105098, C81155, C80993, AA591743, AA230520, AA107327, AA073945, AA892826, T025355.

SEQ ID NO: 246

U68546, L22000, Z54141, X13141, M55015, Z99109, AC004708, AC004118, X62695,
 Y14083, U00039, AF013293, U60315, M22090, X90588, AE000421, M64985, L07305,
 U10413, U28142, D14525, AF023920, U53152, U00066, AB013393, U10412, Z29967,
 U41109, AF016420, AC004705, AC002502, Z79605, AA876550, AA746642, AA382643,
 AA628196, AA169801, AA830932, AA716337, AA363131, W30985, AA164973, W05702,

R53302, AA075107, H15502, Z45779, F12543, H09230, T74152, W47230, AA284633,

AA046186, AA505776, AA323837, AI025919, AA070092, T07873, AA017596, H53316, H12184, AA371498, Z41946, W24237, W31023, AA867068, AA512039, AA024374, AA871823, AA111131, AA013530, AA655966, AA958548, AI019169, AA718857, AA111360, AA555824, AA218439, AA957790, C06983, AI029962, AA751937, Z35744, C93933,

5 AA597601, C70605, D70104, C53466, AA471450, D69706, D66645, D65421, C13893, R65553, D66020, AA948790, H31601, AA849618, AA660795, AA841362, AA943244, C68724, AA952184, AA547861, AA494584, C72786, AA950723, W06819, AA661015, AA849106, N21913, AA390486, AA851513, D41123, D68520, AA660496.

10

SEO ID NO: 247

AL021330, U89697, AC004231, U66589, AA458995, AA628196, R64023, U66423, AA948114, N25254, AA708798, AA085369, AA757558, N36089, AA111131, AA790571, AA986871, AA426978, AA198610, AA114592, AA217736, AA867842, W30547, AA799199, AA214920, AA518421, AA198948, D77085, W12125, AA492788, AA497777, AA493043, AA698330, AA819448, N81480, A1008235, AA802857, AA570834, AA850054, AA991079, AA859041.

20

SEQ ID NO: 248

AF027390, M55673, U28686, Z73905, U95982, U67212, AC004525, M19799, U70857, AF067216, Y00023, AC002303, AF022727, AF067611, U13070, AA002081, AA831044, AA113840, AA805579, AA767554, W91985, AA430583, AA740770, AA768675, AA433927, N68306, AA765872, AA004288, AA113127, AA002245, AA903135, AA705271, W91964, AA682981, R62689, AA306222, T72106, AA143762, AA325775, T78803, AA076252, AA192462, AA085427, R36350, AA305641, W37253, H00486, AA307902, AA001622, AA313689, AA054406, AA345397, AA356897, T55643, AA092407, AA305815, AA177031, AA010149, AA010150, AA705484, AA811088, AA105116, AA790191, AA790153, A1006318, W09603, AA939578, D76727, A1046894, AA152861, AA983116, AA547630, AA390060, AA238985, AI021034, AA139951, AA589062, AA619440, AA414094, AA672120, AA869414, AA027542, AA686756, C93720, AA686313, C91205, AA687033, C93846, C54318, D66007, C93938, AA940889, AA660648, T20905, Z37604, D27073, H32361, H74821, AA897979, AA660309, AA926472, AA92542, AA849396, X73736

- AE000046, AE000036, U35013, AC003080, AP000034, AE000004, AE000035, U09871, U26310, Z70691, U93196, Z75746, Z75893, U49830, AE000054, AF043105, Z36753, AC003043, AL021469, M34482, AF064860, AC003676, AE000002, M81688, AL008971, U10414, AC004644, U97003, L08380, M81689, Z37964, U97190, AF036444, AE000550, Z48007, X56851, AB008264, X82684, AC000076, U80028, Z98753, AL021480, U10402, L09750, U40423, Z66514, U41748, Z54236, Z11115, U00040, AB015477, AF016414, Z66497,
- AC002456, M29154, Z68120, AE001117, AA527268, AA780210, AA431793, W74607,

rougese senyon

- AA004205, N28891, N25768, AA643184, AA630321, AA854206, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA490320, W94384, AA424324, H49322, W68201, AA165561, AA678487, W04711, AA486288, AA114952, N73273, W02793, AA214609.
- 5 N67842, AA864358, W30934, AI034146, AA953621, W68202, W15581, H49323, AA693353, AA648400, H44141, H97860, AA205308, AA766793, AA971954, N20849, AA804853, AA485269, AA433927, AI004353, N62700, AA825778, AA114829, AA007422, HI0401, AA552090, W31657, AA579359, R82009, H01442, AA216543, T97120, H69533, AA318373, AA430583, AA779558, AA025477, AA702752, W67753, AA329745, R22948, AA774128.
- T97005, R82061, D78892, R81522, T35994, AA996354, AA775160, H48804, R34243, Z28536, AA025396, H48810, H44062, AA513115, W90371, AA287628, R62712, Z19475, C02732, AA777768, AA628646, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA822900, AA560406, AA079914, AA254405, AA561771, AA097088, AA822893, AA444663, AA623299, AA200448, AA960524, AA396152, AA863792, AA862792, A
- AA560556, AA472424, AA183321, AA790566, D18314, AA116991, AA545942, AA718699,
 AA162299, AA288151, AA619931, AA718602, AA538093, AA980553, AA170629, W36441,
 AA688806, AA414642, AA690993, AA855805, AA517348, W71565, AA268163, AA690916,
 AA690917, AA756480, AA624507, AA270487, AA849531, AA848917, AA957315, A1009528,
 C06826, C23790, D22377, AA605573, D39911, Z18210, C32716, C89903, AA898115,
- 20 AA943491, AA051845, C93176, C84183, C90994, C92834, AA945230, D42886, AA438451, AA899962, C94217, AA842873, AA900113, AA924397, AA997400, C36068, AA957108, D73182, C62969, R30308, AA890788, AI044720, T02433, C25562, AA942692, AA996923, N96377, W06489, C09371, AA161699, N55612, AA712502, AA202444, C90271, AI037825, H33868, AA550648, W63192, AA925905, AA676066, AI045785, AA990991, C49169, C54804, C54452, AI012441, W63171, AA925071, AA850803.

SEO ID NO: 250

- D90716, AE000181, AE000777, AF003626, S38698, W31813, W03446, AA011499, AA045835, H69988, AA336381, AA206741, AA348162, AA337762, AA917730, C17881, AA329851, AA045969, AA330339, AA148860, AA354856, H48612, H48619, AA318031, AA011500, AA361087, AA424428, AA094788, AA527916, AA182437, H22733, T53273, AA085882, AA188322, AA005133, AA320171, AA366689, H92225, AA809519, AA358978.
- 35 H44710, AA155839, W97332, W45747, AA727854, AA896228, AA059823, AA789939, AA140441, AA032863, AA760526, AA726236, AA2667387, AA791055, AA666667, AA086866, AA096662, AI019235, AA799210, AA166173, AA881031, AA726992, W07991, AA691105, AA667205, AA667224, AA122715, AA472537, AA388943, AA894335, X89996, Z81222, X93228, AA951463, AA944617, C93776, AA941885, AA965140, C65935,
- 40 AA202573, AA583103, AA392380.

SEO ID NO: 251

45 AC003080, AE000035, AE000046, AE000036, AP000034, AE000004, U35013, U26310, Z70691, Z75746, U93196, U09871, Z75893, AE000002, AE000054, AC003676, Z36753,

JOHESONG ISOVAD

AL021469, AC003043, U49830, AF043105, M34482, AF064860, U63312, Y10196, Z48007, D86251, U80028, AL008971, M81689, U41748, AB008264, AL021480, AC000076, AB010068, L09750, AF016414, Z66497, AC002341, AB009525, AB015477, Z84814, Z68120, U97190, U97003, Z54236, U10402, U10414, AC004644, AE001117, Z98753, Z37964

- 5 AC003998, Z11115, AF036444, X82684, X56851, U40423, AE000550, M29154, Z66514, M81688, AA527268, AA431793, AA780210, W74607, AA004205, N28891, N25768, AA630321, AA854206, AA643184, AA216596, Al038928, W45570, AA811726, AA001737, AI027706, N30763, AA535623, W90372, AA603729, W94384, AA610141, W92013, AA148861, H97575, W68201, AA490320, H49322, AA214609, W04711, AA424324.
- 10 AA486288, AA678487, AA114952, W30934, N73273, W02793, AA165561, AA864358, N67842, AA953621, Al034146, W68202, W15581, AA971954, AA693353, H49322, H44141, AA205308, AA433927, AA648400, H97860, AA825778, N20849, AA766793, AA485269, AI004353, AA804853, N62700, AA114829, AA007422, AA552090, R82009, W31657, H10401, AA579359, AA216543, H01442, AA318373, T97120, AA430583, AA779558,
- H69533, AA025477, AA702752, AA329745, AA774128, W67753, T97005, R22948, AA996354, R82061, R81522, D78892, T35994, AA775160, H48804, R34243, Z28536, H48810, AA513115, H44062, AA025396, C02732, W90371, Z19475, AA7777768, AA628646, AA287628, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA561771, AA097088, AA822893, AA444663, AA623299, AA200448, AA183321, AA116991, AA790566, AA863792.
- AA960524, D18314, AA560556, AA472424, AA396152, AA288151, AA690916, AA756480, AA268163, AA718699, AA162299, AA414642, AA624507, AA619931, AA718602, AA980553, AA690917, AA270487, AA764531, AA690993, W36441, AA170629, AA688806, AA538093, AA855805, AA545942, W71565, AA849531, AA848917, AA957315, AI009528, C06826, C32716, AA605573, D39911, D22377, C23790, C84183, C92834, AA899962, C93176, C90994, AA051845, AA943491, T38519, C89903, AA438451, AA945230, D73182, AI012441, C25562, AA842873, AA942692, AI044720, C54804, C54452, C36068, AI045785,
 - H33868, N55612, W06489, AA997400, C62969, AA550648, AA676066, AA712502, AA898115, AA924397, AA957108, AA925965, C94217, W63171, AA161699, W63192,
 - 30 AA850803, AA900113, AA996923, AA925071, AA202444, N96377, T02433, AA990991.

- AE000004, AE000035, AP000034, AE000046, AC003080, U35013, AE000036, U26310,
 Z70691, U09871, Z75893, U93196, Z75746, AE000054, AC003676, AL021469, Z36753,
 AL009029, AF064860, AF043105, U49830, M34482, AE000002, AE0001117, AB010068,
 Z66497, L09750, Z37964, AB008264, Z11115, U10414, Z48007, X56851, Z66514, U80028,
 Z54236, AC002456, AF016414, Z98753, AB015477, U10402, AC000076, X82684, AC004644.
- 10 U97190, AC003998, Z84814, M81688, M81689, AL021480, AE000550, AL008971, U97003, AC002341, U40423, D86251, M97006, AF036444, U41748, Z68120, M29154, AA527268, AA780210, AA431793, AA004205, W74607, N25768, AA630321, AA854206, AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, N28891, W90372, AA603729, AA610141, W92013, AA148861, AA535623, H97575, AA490320,
- 45 W94384, W68201, W04711, AA424324, H49322, AA486288, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA214609, AA953621, W30934, AI034146, W68202,

W15581, AA693353, H49323, AA205308, AA648400, H97860, H44141, AA433927, N20849, AA766793, AA485269, AI004353, AA804853, AA114952, AA971954, AA825778, N62700, AA114829, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533, AA702752, AA318373, AA430583, AA779558, W67753, AA329745, T97005, R22948, AA774128, W31657, R82061, R81522, AA996354, AA775160, AA216543, AA025477, H48804, R34243, Z28536, T97120, H48810, AA513115, H44062, AA025396, AA7777768, AA287628, D78892, C02732, T35994, AA628646, W90371, R62712, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA561771, AA623299, AA822900, AA200448, AA097088, AA444663, AA254405, D18314, AA183321, AA116991, AA790566, AA560556, AA960524, W71494, AA396152, AA863792, AA472424, AA690917, AA170629, AA688806, AA755397, AA690993, AA717461.

AA183321, AA116991, AA790566, AA560556, AA960524, W71494, AA396152, AA863792, AA472424, AA690917, AA170629, AA688806, AA755397, AA690993, AA717461, AA756480, W71565, AA855805, AA270487, AA414642, AA681482, AA71596, AA718602, AA718699, AA545942, AA624507, AA619931, AA672971, AA288151, AA538093, AA980553, AA690916, AA268163, W10629, AA537842, AA162299, AA571015, W36441, AA848951, AA8489517, AA957515, A1009528, C32716, C23790, D22377, AA605573, D39911, C84183, AA899962, C93176, AA051845, C89003, AA945230, C98334, AA676066, C00094

C84183, AA899962, C93176, AA051845, C89903, AA945230, C92834, AA676066, C90994, AA943491, AA438451, AA597644, T02433, AA202444, W06489, AA997400, AA842873, A1012441, D73182, A1045785, A1044720, AA712502, AA550648, C25562, AA942692, AA898115, AA990991, C06826, W63192, AA850803, AA900113, AA925965, W63171, C94217, AA957108, AA404797, AA924397, C36068, C54452, N55612, AA161699, C54804,

0 C94217, AA957108, AA404797, AA924397, C36068, C54452, N55612, AA161699, C54804, AA996923, N96377.

SEQ ID NO: 253

AE000004, AE000046, U35013, AP000034, AC003080, AE000035, AE000036, Z70691, U09871, U93196, Z75746, Z75893, Z36753, AF064860, AC002287, AC003043, M34482, AC003676, AE000002, AE000054, AF043105, Y10196, AL021469, AL009029, U41748, AL021480, Z11115, AE001117, Z48007, U40423, Z37964, AF036444, Z66497, X82684, AF016414, AE000550, M81688, M81688, M29154, AC002341, U80843, U97003, U263110, U10402, AC004644, AL008971, Z54236, U97190, L09750, AB015477, Z68120, Z66514, AC000076, AB008264, Z98753, X56851, U10414, U80028, AC003998, AA527268, AA780210, AA431793, W74607, AA004205, AA630321, N25768, AA643184, AA854206, AA216596, AI038928, W45570, N28891, AA811726, AA001737, AI027706, N30763, W90372, AA603729, AA535623, AA610141, W92013, AA148861, H97575, W94384, AA490320, W68201, H49322, AA424324, AA214609, AA486288, AA678487, W04711, W02793, N73273, AA165561, AA864358, N67842, W30934, A1034146, W15581, AA953621, W68202, AA114952, AA693353, AA971954, AA205308, H49323, AA648400, H41411, H97860, AA433927, N20849, AA485269, AA766793, AI004353, AA804853, AA825778,

- N62700, AA114829, AA007422, AA552090, AA579359, R82009, H10401, H01442, W31657, AA216543, H69533, AA702752, AA318373, AA025477, AA329745, AA430583, AA779558, R22948, T97120, W67753, T97005, AA774128, R82061, R81522, AA775160, AA996354, H48804, Z28536, R34243, D78892, T35994, AA025396, H48810, AA513115, H44062, AA287628, C02732, AA777768, AA628646, W90371, Z19475, R58722, AA175464,
- 45 AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA097088, AA561771, AA822893, AA200448, AA472424, D18314,

AA116991, AA560556, AA790566, AA396152, AA863792, AA960524, AA183321, AA756480, AA855805, AA170629, AA270487, AA688806, W71565, AA268163, AA414642, AA162299, AA288151, AA718602, AA718699, AA545942, AA619931, AA624507, AA980553, AA690917, AA690993, AA690916, AA849531, AA848917, AA957315, A1009528, C23790, C32716, AA605573, C06826, C93176, C89903, C90994, AA945230, AA943491, AA899962, C92834, C84183, AA051845, C54452, N55612, AI012441, AI044720, AA997400, AA925965, D73182, T02433, AA996923, AA957108, AA990991, AA161699, C36068, W63192, AA712502, AA898115, AA942692, AA202444, D22377, D39911, H33868, W06489, C94217, AA850803, C25562, AI045785, W63171, AA842873, AA550648, AA924397.

SEQ ID NO: 254

AP000034, U35013, AE000036, AE000035, AC003080, AE000004, AE000046, U26310, Z75893, Z75746, U93196, AC003676, U49830, AC003043, M34482, AF043105, AE000054, AE000002, AF064860, AC002287, AL021469, Z36753, AL009029, Y10196, U10402, Z48007, AC002341, AC000076, AL008971, M81689, Z66497, D86251, AE001117, L09750, AC002456. AC004135, AC004703, Z11115, AF036444, Z70289, U95090, U80843, AC002066, Z68120 AC003998, U40423, Z98753, U41748, U80028, Z66514, AL021480, AB010068, AC004644. U10414, U97190, U97003, Z37964, X56851, Z54236, Z84814, X82684, M81688, AF016414. M29154, AE000550, AB008264, AA004205, W74607, AA780210, AA431793, AA630321. N25768, AA643184, AI038928, AA854206, AA216596, W45570, AA811726, AA527268, AI027706, AA001737, N30763, AA603729, W90372, AA610141, AA148861, W92013. AA490320, H97575, W04711, AA424324, AA535623, AA486288, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA953621, AI034146, W68202, W15581, W94384, AA693353, H49323, N28891, W68201, AA205308, AA648400, N20849, H49322, AA766793. AA485269, AI004353, H97860, AA804853, W30934, AA433927, N62700, AA114829, AA825778, AA214609, AA007422, AA552090, AA579359, H10401, H01442, H44141, H69533, AA702752, W67753, AA971954, AA779558, R82009, AA430583, T97005, R22948, 30 AA774128, R82061, AA318373, AA114952, R81522, AA996354, AA775160, AA329745, H48804, R34243, Z28536, H48810, AA513115, H44062, AA025396, AA777768, AA287628, AA628646, W31657, C02732, AA216543, AA025477, T97120, D78892, T35994, R58722.

AA560556, AA183321, D18314, AA396152, AA960524, AA790566, AA472424, AA116991, AA863792, AA170629, AA688806, AA718602, AA690916, AA756480, AA268163, AA690993, W36441, AA414642, AA624507, AA288151, AA162299, AA538093, AA690917, W71565, AA855805, AA545942, AA718699, AA980553, AA270487, AA619931, AA117622, AA208995, AA474849, C80271, AA712010, AA759545, AA510718, AA798564, AA168386.

R62712, W81313, AA175464, AA200267, AA466843, AA611918, AA608178, AA079914, AA396402, AA560406, AA561771, AA822900, AA623299, AA200448, AA444663.

- 40 AA759392, AA274576, AA863529, AA939932, AA183584, AA543538, AA048938, AA162089, AA959168, AA546863, AA177481, AA244613, AA245968, AA840456, AA880395, W71494, AA036386, AA155555, AA198582, AA416281, AA547224, AA277326, AA958885, AA106584, AA286405, AA849531, AA848917, AA957315, A1009528, D22377, C23790, D39911, AA605573, C32716, AA438451, AA925071, C89903, AA899962, C90994,
- 45 AA945230, C93176, C92834, AA051845, C84183, AA943491, T02433, C36068, C54452, C54804, AA202444, AA842873, AA996923, N55612, AA550648, AA850803, N96377,

oorspap.osozoo

AA957108, AA676066, AA712502, AA924397, C94217, W63171, AA942692, W63192, AA925965, AI044720, AA997400, AI012441, AA990991, AI045785, D73182, C25562, W06489, AA161699.

5 SEQ ID NO: 255

AC004381, Z34294, AE001023, AG000110, AF043700, AC002050, Z19595, Y15685, Z98557, D21126, Z70757, AA115418, AA326624, N21005, H91682, AA36210, AA722830, AA024930, AA507115, AA808743, AA847250, R71586, AA992661, AA296828, AA526931, N95179, N57342, AA143283, W40406, AA587485, H65350, R79180, AA946707, AA298828, AA503924, AA486261, AA437238, AA442303, AA765280, AA177015, W56676, A1033929, AA235699, AA437013, AA569324, AA024825, AA772627, AA693744, AA635984, AA442843, AA461611, AA297347, AA229574, AA083801, N99131, N32134, H99612, AA297186, A1033160, A1027413, AA876042, AA642111, AA622287, AA461439, AA452671, N29407, AA404217, AA251853, AA302967, AA687956, H96097, H04783, AA991975, AA745968, W37497, AA918131, AA946883, W40407, AA508853, AA302689, AA298181,

AA/45968, W3/497, AA918131, AA96883, W40407, AA308833, AA302888, AA298381,
AA524571, W69596, A1022024, AA861434, AA831222, AA740528, AA724107, AA459952.
AA927760, AA298536, AA298240, AA292566, AA286750, AA143393, AA130392, W69409,
W24131, N58333, N57307, H37822, AA921691, AA915895, AA545320, AA734466,
AA636550, AA921220, AA415216, AA451042, AA388279, AA174380, Z46297, R65246,
C72021, C72540, D76297, AA550414, C47036, C42147, AA859311, C41752, C43660,
D75878, T37831, C49142.

25 SEO ID NO: 256

AC004381, U29082, AC002078, M94080, M33582, U39655, AC005161, U50193, X16549, X16553, Y12025, U53344, U00036, AA412384, AA837145, AA602982, AA115419, 30 AA478697, H67227, AA587840, AA13086, R76363, H81547, H83962, AA665443, AA251488, AA662495, AA301274, AA976922, AA132987, AA722928, AA478563, AA579347, AA501519, AA169423, R76688, N62994, AA629042, AA013476, AA018206, AA252018, N79902, AA64296, N23634, R41716, AA125908, F02250, N79270, N94499, AA236462, AA662818, N64551, AA436025, AA962585, AA127093, R49041, R43118, 34115152, N62138, F02743, AA125794, AA639166, AA281970, AA573768, AA127071, Z40901, F02957, AA722997, AA347035, AA365473, AA436317, R77437, AA574240, AA729358, AA436192, H01511, W73300, AA577027, W96984, AA530599, C22934, F14212, AA568080, C35274, AA751821, AA751972, C92915, D27726, AA926098, AA924800, D64416, AA923860, AA892301, AA549967, C52515, D32818, AA945020, AA901415, 40 C55124.

SEQ ID NO: 257

45 AC004381, AE001023, AG000110, AC002050, AF043700, D21126, Z98557, Z19595, Z70757, M35862, AF001549, Y15685, AA115418, AA326624, AA024930, AA836210, N21005, H91682, AA722830, AA524571, W56676, AA442843, A1022024, AA724107, AA29881, AA302967, AA915895, AA847250, AA918131, AA927760, AA459952, AA808743, AA772627, AA745968, AA921691, AA404603, AA302689, AA298828, AI027413, W40407,

W24131, H27066, N32134, AA693744, AA768383, AA861434, AI016392, AA622287, AA586689, AA486260, W37391, AA442303, AA298536, AA298240, AA297222, AA083801, AA074204, AA024825, R79180, H07945, R71586, AA404217, AA296828, AA143393, W37497, AI033929, AA284849, AA946883, AA757574, AA676676, AA662435, AA642111,

- 5 AA635984, AA569324, AA460041, AA894509, AA461439, AA461611, AA177015, AA130392, N99131, N57307, A1033160, AA235699, AA991975, AA992661, AA687956, AA297394, AA297347, AA292566, AA526931, N57342, H99612, H06143, AA946707, AA876042, AA831222, AA651857, AA630335, AA587485, AA578220, AA508853, AA507115, AA297186, AA284802, N29407, AA5485320, AA734466, AA636550, AA921220.
- 10 AA174380, AA388279, W64017, Z46297, R65246, C72021, C72540, D75878, C42147, C43660, T38141, C49142, AA550414, D76297, T37831, AA859311, C47036, C41752.

SEQ ID NO: 258

15

DOVERDED DEBYCO

30

AC004381, U29082, AC002078, Z72625, M33582, Z86061, U39655, Z72626, X16553, U53344, Z92815, M94080, AL010222, D10040, U50193, Z72828, X16549, Z72829, AA837145, AA602982, AA115419, AA412384, AA587840, H81547, R76363, AA665443, AA251488, AA662495, H67227, AA478697, AA301274, AA132987, AA13086, AA722928, AA478563, AA579347, AA501519, H83962, R76688, AA629042, AA976922, AA252018, N79902, AA169423, N62994, AA644296, AA013476, T26917, AA018206, T26928, N23634, AA329023, R41716, R49041, R43118, F02743, W73300, AA457471, AA334995, N90126, T84778, AA645726, W36240, AA061413, W96984, AA530599, AA802677, AA391861, F14212, C22934, AA892301, Z26665, H31953, D32818, AA926098, AA924800, C52515, AA751821, D64416, AA549967, AA539408, C92915, AA923860, C51698, D27726, AA945020, AA901415, C55124, T12735, C35274, AA751972, AA568080, AJ045499.

SEQ ID NO: 259

AC004381, AE001023, D21126, Y15685, L10388, AC002050, Z70757, Z98557, Z19595, AF043700, AA115418, AA326624, AA722830, AA836210, AA024930, N21005, H91682, AA024825, AA297394, AA861434, N29407, AA635984, R79180, W40407, AA442843, AA284849, AA586689, AA297222, AA284802, AA292566, N57342, AA662435, AA404603, AA130392, AA486261, AA569324, AA503924, N57307, A1016392, AA630335, AA079126, AA298240, AA991975, N95179, AA992661, AA687956, AA587485, AA578220, AA302967, H99612, AA946707, AA876042, AA831222, AA526931, AA437238, AA437013, W37391, AA915895, AA640985, AA508853, AA143283, AA297186, AA251853, AA918131, AA297347, N99131, N58333, A1022024, AA921691, AA765280, AA740528, AA651857

- 40 AA286750, AA298381, AA507115, W69596, AA298536, AA724107, AA618605, AA229674, AA229574, W69409, W40406, H96097, H65350, H37822, H04783, AA745968, AA847250, AA302689, AA298828, AA927760, AA772627, AA524571, AA486260, AA235699, AA545320, AA734466, AA636550, AA921220, AA388279, AA174380, Z46297, R65246, C72540, C72021, C41752, C49142, AA550414, C47036, C43660, Z35625, T37831, C42147, D76520, D76620, AA6200, AA6200,
- 45 D75878, D76297, AA859311, F19815, C62071, C63980, AA539230, AA875056, D33778, C70418, AA942029, C10094, W68996, AA899150, AA391082, AA859705, AA697636, AA540373, AA695973, D34863, AA699026, D48829, H39253, AA246420.

SEO ID NO: 260

AC004381, U29082, AC002078, U39655, M33582, M94080, U53344, AC002451, X16549, D10040, X16553, Y12025, U50193, AA837145, AA412384, AA602982, AA478697,

- 5 AA115419, AA587840, R76363, H81547, H67227, H83962, AA665443, AA133086, AA251488, AA976922, AA662495, AA301274, AA132987, AA169423, N62994, AA7222928, AA478563, AA013476, AA579347, AA501519, R76688, AA629042, AA018206, AA252018, N79902, H70300, AA644296, N23634, AA127071, F02250, AA716541, R41716, AA125908, AA662818, N79270, N62138, N64551, AA236462, AA436025, AA962585, R43118,
- 10 AA115152, R49041, F02743, AA125794, AA281970, AA639166, AA127093, AA573768, N94499, AA877109, AA449432, AA608686, Z40901, W52069, AA688218, AA398554, F02957, AA347035, W73300, AA061413, W96984, AA530599, F14212, C22934, AA926098, C92915, D27726, AA924800, AA923860, C55124, AA892301, AA549967, AA751821, AA945020, D32818, AA901415, D64416, C52515, C35274, AA751972, AA568080.
 15

SEQ ID NO: 261

- AC004381, Z93385, Z48717, AL022198, AE001023, Y15685, AC002050, AF043700, Z84815, D21126, AA115418, AA326624, AA836210, AA024930, AA722830, N21005, H91682, AA918131, AA503924, AA921691, AA642111, AA297222, AA894509, AA915895, AA251853, W69409, AA286750, AA740528, W56676, AA676676, AA143283, AA459952, AI027413, AA486260, AA284849, AI033160, AI016392, AA861434, AA847250, AA768383, AA724107, AA765280, AA460041, AA507115, AA404217, AA177015, AA130392,
- AA083801, AA640985, AA946883, W40406, AA569324, AA296828, AA586689, N32134,
 AI033929, N95179, AA991975, AA757574, AA461439, AA897649, AA143393, N57342,
 N57307, AA526931, AA662435, AA635984, AA630335, AA461611, W37391, N99131,
 H99612, AA578220, AA622287, AA831222, AA992661, AA693744, AA437013, AA297394,
 AA297347, AA292566, AA284802, AA946707, AA876042, N29407, AA687956, AA587485,
 AA297186, N58333, AA508853, AA486261, AA437238, W37497, H37822, AL020204.
- AA597186, N88535, AA508635, AA460261, AA457258, W37497, F157622, AR022024, AA545320, AA734466, AA636550, AA921220, AA174380, AA388279, R65246, C72021, C72540, C41752, C42147, D75878, AA550414, C47036, C43660, T37831, C49142, D76297, AA859311, AA697636, D48829, T44877, AA859705, AA246420, C10094, AA942029, AA699026, D34863, C62071, C63980, AA875056, AA540373, AA539230, AA957800,
- 35 AA899150, AA695973, C70418, W68996, AA391082.

- 40 AC004381, U29082, M94080, U39655, M33582, X16553, U53344, Z72828, X16549, AC004301, Z72829, AL010222, U50193, Y12025, D10040, AA837145, AA602982, AA115419, AA412384, AA587840, R76363, H81547, AA665443, AA251488, AA662495, H67227, AA301274, AA478697, AA132987, AA722928, AA478563, AA133086, AA579347, AA501519, R76688, H83962, AA629042, AA252018, AA976922, N79902, AA169423,
- 45 N62994, AA013476, AA018206, AA644296, N23634, R49041, F02743, R43118, R41716, W73300, AA334995, N90126, AA061413, AA530599, W96984, AA163443, AA612360, AA919946, AA967393, C81197, AA163825, W33363, AA940335, AA522025, AA238429, AA915211, AA518646, AA930778, AA275870, AA177383, AA119983, AA058115, W12739, AA168575, F14212, C22934, C55124, C52515, C92915, C35274, C51698, AA549967, D32818,

AA945020, AA901415, AA892301, AA568080, D64416, AA923860, D27726, AA926098. H31953, AA924800

5 SEO ID NO: 263

Z13009, L08599, Z18923, X52279, X12790, L34793, L34792, S72491, L34791, S72397 X06115, X06339, L34794, X60967, X60968, X06340, X60969, X60966, X58518, X79076 M81894, M83822, D55723, X63629, AF033826, R18632, AA350567, AA393866, AA968708, AA627539, AA789905, W34925, AA530118, D21428, AA591039, AA619058, AA104868,

10 AA198453, AA413826, AA510308, AA959889, AA051340, AA066361, AA561627. AA497505, C94993, AA042504, C06552, AA696737, AA497288, H36182, AA695064. C67449, H37133, D27932, D32712, C52050, C71282, D39592, AA816980, C55002 AA391562

15

SEO ID NO:264 U27342, Z68303, AC004781, S73774, AL022101, Y07798, X90875, Y07794, D88263. M64432, U51280, AC001228, Y12837, U65015, AA350564, AA350565, AA468654,

- AA765067, R41600, AA350566, AA853438, R39007, T03595, AA412215, AA470028, AA412297, AA470131, AA469999, AA903683, AA093062, AA351759, R71491, AA258193, AA258192, AA720846, AA937165, T10309, R36757, AI003321, T03830, AA192826, R19610. W28150, AA324720, AA062006, AA387949, AA839038, AI020928, AA795918, AA415042. AA116532, W98366, AA608357, AA386458, AA691023, AI047462, AA792773, AA690308. AA122697, AA172715, W42322, AA608314, AA217326, AA549457, AA544778, AA734976,
- AA241231, AA117090, AA000423, AA823809, AA467031, AA770931, AA645614, AA681737, AA386418, AA790521, AA592036, AA673138, AA574842, AA254046. AA111508, AA097379, AA770877, AA880646, C76432, AA529411, AA517533, AA111435. AA008950, AA647505, AA655324, AA797631, AA222588, AA036250, AA350564 AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595.
- AA412215, AA470028, AA412297, AA470131, AA469999, AA903683, AA093062. AA351759, R71491, AA258193, AA258192, AA720846, AA937165, T10309, R36757. AI003321, T03830, AA192826, R19610, W28150, AA324720.

35 SEO ID NO:265

- U27342, AC004781, S73774, Z68303, AL022101, Z84480, AC000097, M64432, D88263. U51280, AC001228, AA350564, AA350565, AA468654, AA765067, R41600, AA350566. AA853438, R39007, T03595, AA093062, AA903683, AA775269, AA290925, AA937165. R34308, AA477363, AA989352, AA290585, W28150, AA258193, AA988332, R71491.
- 40 AA720846, H92820, AA324720, AA488541, AA258192, AA488406, AI003321, T10309, AA062006, AA387949, AA867162, AA881310, AA116532, AA509748, W98366, AA770877, AA529411, AA097379, AI047462, AA608314, AA790521, AA122697, AA000423, AA592036, AA517533, AA797631, W68921, AI045772, C82795, F15109, U90031, AA141112, C41516. AA818364, AA140834, C83651, AA892748, D39545, C47745, AI011095.

SEQ ID NO: 266

U27342, AC004781, Z68303, S73774, D88263, Y07794, AL022101, X90875, Y07798, Y12837, M64432, AC003002, AC001228, U51280, AA350564, AA350565, AA468654, AA765067,

- R41600, AA350566, AA853438, R39007, T03595, AA469999, AA470028, AA470131, AA412215, AA412297, AA903683, AA093062, AA324720, T03830, W28150, AA258193, AA258192, AA720846, AA937165, T10309, AI003321, R71491, AA350564, AA350565, AA468654, AA765067, R41600, AA3505666, AA853438, R39007, T03595, AA469999, AA470028, AA470131, AA412215, AA412297, AA903683, AA093062, AA324720, T03830,
 W28150, AA258193, AA258192, AA720846, AA937165, T10309, AI003321, R71491, T76120, AI045772, C82795, D39049, AA859351, AA997761, AA818364, C07408, D39545, U90031, AA956118, AI011095, AA141112, AA140834, AA875559, AA892865, C07407, AI009091, AA892748, C83967, F15109, D39020, H75267, C83651.
 - SEO ID NO: 267

J00370, V00727, V01184, AC000073, Z78022, D50522, X82202, X99699, D50521, X59856, AF001905, T80545, AA911966, T66962, Al040139, AA778816, Al022235, H71003, AA477579, W95135, R32943, AA203704, R33921, R33906, R31511, AA387949, AA002910, AA163393, AA016332, AA560074, AA871746, AA107526, AA856332, W66852, AA759484, AA733777, AA241027, AA198681, W17533, AA674342, AA059902, AA086951, AA123955, AA143959, AA657028, AA109633, AA254925, AA272846, AA693048, AA867023, AA764115, AA067213, AA982959, AA840176, AA220273, W36387, AA735681, AA433213, AA859989, D25097, AA440514, D24327, AA202772, Al029778, AA803282.

- 30 S73774, Z68303, U27342, AC004781, AL022101, Y07798, Y07794, D88263, Z81588, X90875, Z62640, Z84480, AC001228, U51280, Y12837, M64432, AA350564, AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595, AA469999, AA470028, AA412297, AA412215, AA470131, F03038, AA093062, AA903683, AA258193, AA720846, AA258192, AA937165, T03830, A1003321, T10309, AA324720, AA989352, R71491, W28150, A6062006, AA387949, AA415042, AA839038, AA795918, A1020928, AA881310, AA867162, W98366, AA116532, AA509748, AA645614, AA254046, AA008950, C76432, AA797631, AA880646, AA426992, AA655324, AA117090, AA690308, AA517533, AA217326, AA636421, AA467031, AA529411, AA612323, AA110509, AA549457, W42322, AA608357, AA792773, AA770877, AA833314, AA000423, AA111508, AA386418, AA647505.
- 40 AA097379, AA386458, AA222588, AA111435, AA109906, AA036250, AA681365, AA122697, AA241231, AI047462, AA734976, AA500187, AA592036, AA172715, AA790521, AA763315, AA673138, AA691023, AA608314, AA574842, AA727407, AA544778, AA177596, AA770931, AA931008, AA823809, AA681737, C68298, H35145, D71072, AA684898, AA685924, Z17919, AI045772, AA687072, AA859351, AA818364, AA140834,
 45 D39545, U90031, AA997761, D39049, AA141112, AB009090, C83967, C07407, C07408,
- 45 D39545, U90031, AA997761, D39049, AA141112, AB009090, C83967, C07407, C07408, F15109, AA892748, AI011095, C83651, C82795, D39020, AA875559.

SEQ ID NO: 269

- Z13009, Z18923, L08599, X52279, X12790, L34793, L34794, X06115, X06339, S72397, L34791, L34795, X60967, X60965, X60968, S72491, L34792, X60966, X06340, X58518, X79076, M81894, M83822, AC005142, D55723, M15343, Z92540, X63629, AF033826, M26125, D90913, AA393866, AA29129, AA968708, AA627539, AA157695, AA789905, W34925, AA530118, D21428, C79764, AA591039, C79768, C79219, AA066361, AA104868, AA497505, AA561627, AA959889, AA413826, AA530017, AA681704, AA718524.
- 10 AA510308, AA686498, AA042504, AA686540, C49571, AA685323, AA497288, AA696737, AA695064, H35193, AA586199, AI044495, H37133, AI026234, AA391562, AA816980, D47686.

15 SEO ID NO: 270

AC004781, U27342, S73774, Z68303, AL022101, D88263, Z84480, U51280, AA350564, AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595, AA093062, AA903683, AA720846, AA412215, AA258192, AA470131, AI003321, AA412297,

- AA470028, AA469999, AA324720, AA989352, T10309, R71491, W28150, AA258193, AA937165, AA387949, AA867162, AA881310, AA062006, W98366, AA116532, AA509748, AA517533, AI047462, AA000423, AA823809, AA690308, AA691023, AA217326, AA797631, AA241231, AA529411, AA655324, AA467031, AA222588, AA608314, AA681737, AA770877, AI037418, AA152914, AA647505, AA122697, AA172715, AA592036, AA549457,
- 25 AA790521, AA104839, AA097379, T76120, AI045772, AA697531, AA859351, AA141112, C07408, AA875559, AA892748, C83967, AA140834, AA818364, AI009091, AA956118, C83651, C82795, C07407, F15109, H75267, AA997761, AA892865, U90031, AI011095, D39545.

30

- , Z68303, AC004781, S73774, U27342, AC004548, D88263, AL022101, Y07798, Y07794, Z84480, AB002366, U51280, D87957, M64432, AA350564, AA350565, AA468654,
- 5 AA765067, R41600, AA350566, AA853438, R39007, T03595, AA093062, AA412215, AA412297, AA470131, AA313215, AA470028, AA903683, AA469999, R71491, W28150, AA258192, AA258193, AA720846, AA937165, R36757, AA158308, AI003321, T10309, R19610, AA989352, AA351759, AA324720, AA062006, AA387949, AA881310, AA867162, AA142668, AA239635, AA277006, AA146176, AA183716, AA982676, C76076, AA451083.
- 40 AA088951, AA920455, AA655713, AA718480, AA562390, AA575055, AA839028, AA116532, AA967869, W98366, AA509748, AA274183, Z17919, AI011775, AA685924, AI045772, AI007874, AA687072, AA899688, AI012563, C06955, AA684898, H3517479, AA892865, D39049, AA859351, D39020, AA875559, AA892748, F15109, AA817479, C82795, AA494872, D39545, C83651, AI011095, AA141112, AI009091, AA997761,
- 45 AA651158, U90031, AA140834, C83967, AA801403, AA818364, AA956118, AA801402.

SEO ID NO: 272

X82202, X02796, T80545, AA350567, R18632, W95135, AA232983, A1022235, AA233369, AA778816, AA856332, AA107526, AA163393, AA560074, AA871746, AA016332, AA015494, W66852, AA163094, AA919948, AA733777, C26223.

SEQ ID NO: 273

10 Z68303, AC004781, AL022101, Y07794, AC004548, D88263, Y07798, Z84480, U67543, M64432, AF038605, AA350564, AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595, AA903683, AA258192, AA720846, T08257, W28870, R36757, AI003321, AA210893, AA324720, R19610, R71491, AA989352, T31251, AA258193, AA351759, T10309, AA937165, W28150, AA867162, AA881310, AA509748, AA023919,

15 AA415519, AA467031, AA647505, AA691023, AA549457, AA241231, AI047462, AA797631, AA517533, AA172715, AA608314, AA000423, AA217326, AA690308, AA790521, AA059975, AA770877, AA681737, AA222588, AA823809, AA796249, AA655324, AA529411, AA097379, AA892748, AA997761, D39049, D39020, AA859351, AA494872, AA651158, F15109, D39545, U90031, AA140834, AA875559, AA141112, C83967,

AA818364, AI012097, C83651, C82795.

SEO ID NO: 274

25 Z48163, U62325, U84008, U84010, X82202, X02796, U84009, T80545, AA350567, R18632, AA299431, W29109, H23302, F05409, AA456921, AA314378, AA300128, AA300270, AA054590, AA317632, AA087734, AA56074, AA856332, AA163393, AA016332, AA107526, AA871746, AA015494, W66852, AA163094, AA733777.

30

SEQ ID NO: 275

U27342, S73774, AC004781, Z68303, AC004548, Y07798, D88263, AL022101, Y07794, U51280, M64432, Z84480, AA350564, AA350565, AA468654, AA765067, R41600, AA50566, AA853438, R39007, T03595, AA412297, AA469999, AA470028, AA412215, AA470131, AA093062, AA903683, R19610, R71491, AA258192, AA720846, AA937165, T10309, AA158308, A1003321, R36757, AA258193, AA324720, AA351759, W28150, AA989352, AA062006, AA387949, AA881310, AA867162, W98366, AA718480, AA655713, AA562390, AA509748, AA116532, AA967869, AA239635, AA146176, AA575055.

- 40 AA982676, AA142668, AA920455, C76076, AA274183, AA451083, AA088951, AA839028, AA440423, AA697347, AA567580, AA899688, C06955, AI045772, AA875736, AA201878, AI012563, AI007874, AI011775, AA892865, AA892748, AA801402, C83651, AA966766, AA966377, AA801403, AA956118, T01056, AA997761, C68298, AI011095, AA140834, AA859351, C82795, U90031, AA818364, D39049, AA494872, F15109, AA141112,
- 45 AA651158, AI009091, D71072, AA875559, C83967, D39545, D39020.

SEQ ID NO: 276

Z18923, L08599, Z13009, L34792, S72491, X52279, S72397, L34791, X06115, X60969, X06339, U62325, D10011, M81190, Z11581, U08258, M83822, U84010, U84008, AF006482, U84009, AA350567, R18632, T80545, T71965, AA393866, AA036671, AA456921.

U84009, AA350567, R18632, T80545, T71965, AA393866, AA036671, AA456921,
 AA087734, AA116990, AA163393, AA856332, AA107526, AA871746, AA560074,
 AA016332, AA120757, AA015494, AA163094, AA733777, AA143959, C78091, AA123955,
 AA267377, AA529729, AA198453, AA217509, AA042504, AA497288, C71282, AA494745,
 AA801146, C64820, C62760, C65202, AA735920, H37133, C94993, C67449.

SEQ ID NO: 277

Z68303, AC004781, AC004548, AL022101, D88263, Y07798, Y07794, U95626, M64432, 284480, AA350564, AA350565, AA468654, AA765067, R41600, AA350566, AA853438, R39007, T03595, AA469999, AA903683, AA093062, AA470131, AA412297, AA412215, AA470028, AI003321, R19610, AA989352, AA324720, R71491, C01169, AA351759, W28150, AA346183, R80825, AA258193, R70566, AA258192, AA210893, AA937165, AA720846, N75173, T10309, R36757, AA158308, H83037, T31251, R24022, T08257, N91738,

- N28313, W28870, AA062006, AA387949, AA881310, AA867162, AA920455, AA967869, AA274183, AA655713, AA562390, AA982676, C76076, AA142668, AA239635, AA088991, AA839028, AA575055, AA718480, AA146176, AA451083, AA509748, A1007874, A1011775, AA684898, Z17919, AA685924, C06955, AA687072, AA899688, H35145, A1045772, A1012563, R86425, C83651, C82795, AA531814, U90031, D39049, D39020, C83967, F15109, AA69271, AA89271, AA89
- 25 AA997761, AA892748, AA875559, AA859351, AI011095, AA651158, AA818364, AA956118, AA801403, AA140834, D39545, AA892865, AI012097, AA925264, AI009091, AA801402, AA494872, AA141112.

30 SEQ ID NO: 278

U75272, J04443, X59754, M23077, M18667, X04644, M18660, M23070, M18665, M23075, M23073, M18663, M23071, M18661, M88652, M23072, M18662, M23069, M18659, M23076, M18666, M18664, M23074, M25987, M25988, M25989, M25989, M20920, J04601, M57, J00281, M59237, M73750, M25985, X59753, X59752, M59235, U14406, M19698, AF020510, AF020512, X53037, X59755, M26031, M23165, J00285, D00215, D38104, D45187, M88653, M20788, AF036953, L08418, Y10928, AF036319, M25986, J05036, M84418, J00621, U90321, M57260, X97399, M25990, M84422, S49650, M11233, X05344, M63135, L02636, M84742, M84424, U19717, X69465, U94791, L34361, Y11668, U94795, M36482, L44118, U41166.

- 40 L44119, X69193, Z36157, Z36158, U39199, U71217, AF020513, X76053, L34360, U30251, AF020509, AF020511, U41165, AA906670, AA534285, AA334924, AA335157, T28355, AA335226, AA335213, AA335152, AA335225, AA3352151, AA334918, AA334923, AA335205, AA335206, T62158, T61932, AA335161, AA335113, AA335108, AA335104, AA335101, AA335110, AA3351143, AA335201, AA335104, AA33
- 45 AA410697, AA057554, AA603295, AA433879, H78707, H14144, AA074710, F15763, AA282121, AA133501, R87854, AA120315, W13531, AA172581, AA562772, AA028632,

nowspape ostron

AI035456, AA674642, AA880703, AA739244, AA823912, AA118517, AA817360, AA539362, AA246980, AA441102, AA950510, AA803939, AA949225, D68834, D70510, M88822, C11732, D70490, M80169, D70773, Z14725, D69774, C11719, D70266, D69602, AA520727, AA531934, D65766, AA858922, D69484, AA519302, D40781, C69785, AA848792, D69455, AA892100, D69495, D69996, D70271, D70385, D70109.

SEQ ID NO: 279

AB002334, M73718, M27717, AC002067, Z49235, AC004740, AB011102, M37814, Z98744, D13641, AF000152, AC004015, U81556, U32326, Z78417, Z68316, AC004544, Z75539, S45406, AA884499, AA358171, AA476618, AA923299, N31318, AA767128, T16272, AA130639, AA122201, R81382, AI050868, AA548662, AA429467, AA376220, T85339, AA632310, W46587, N73476, H08150, Z30154, AI038648, AA969830, AA971607, AA836443, AA653179, AA578086, H99657, AA833921, AA807902, W67693, D55907, AA187521, AI017410, AA814462, AA214503, AA209422, W63794, N28354, H03910, AI015056, AA888526, AA604383, AA586610, AI052722, N31612, AI027159, AA888334, AI027906, AA179400, AA922771, AA706343, AA682625, AA525897, AA485217, AA306471, AA282221, N29656, H27823, R13913, F05001, Z19816, AA782560, H23416, AA581660, AA069521, H22320, R62283, AA778382, AA226827, AA035607, W37761, N27024, R63378. AA806971, AA639817, AA188936, N25005, AI025572, AA490953, AA490879, AA228362, AA182881, W40267, N21523, H16846, T66803, AA858168, H81767, N22843, AA657613, H73918, N20117, N24401, AA057815, AA504563, AA523596, N20388, AA939766, AA794705, AA863940, AA123123, AA217673, AA096644, AA855480, AA474154, C89108, AA162338, AA389552, AA168055, W14081, AA895478, L11835, AA517590, AA543798, AA145689, Z36404, AI037527, AA174418, T37837, T38875, C68354, F14422, C49410,

C47200, C42796, C42668, AA660084, D75577, AA113533, AA228253.

30 SEQ ID NO: 280

AB002334, AP000046, U80029, U80678, X83720, X83721, X83719, L36453, L01902, U67476, AC004513, AF008958, Y13013, L36443, L01884, X99960, L12624, U59824, L21938, M83544, L21941, AF040655, U59823, X60381, L13934, Y13001, Z72665, AF021875, U51993, U97015, Z68000, X91648, AC003100, X89598, AB011370, AA732697, R34331, AA490173, R34353, T97185, AA358170, R34468, AA213793, AA833852, AA252581, R63338, AA453724, AA774553, A1040839, AA939302, AA046369, T07867, R62976, AA099897, R61198, AA039614, AA554354, A1004712, W52791, AA219189, M77996, N59350, AI016358, N20509, AA687164, AA856726, A1039655, AA203448, AA815840, AA154089, AA637099, AA511424,

SEQ ID NO: 281

45 U78678, D87741, U85089, U73525, X77234, U52111, M33753, M15442, M11185, L01095, X55317, S73471, M25888, M27110, AF035586, X03098, M14674, AF037222, Z86000,

X02809, M20752, M54927, U49120, AA847574, AA149387, AA135732, AA922637, AA936062, AA531567, AA425729, H49133, AA422000, AI017377, N93282, AA931709, T83643, AA424838, AA422076, R01195, H62744, T75066, W25122, AA374578, R65722, AA335669, D80535, AA360427, R68402, T55701, AA135776, T55617, T81252, T83806.

- 5 AA151477, H20901, D60042, R16704, D80859, R97305, AA512991, AA349005, R10838, AA331147, AA336200, D81732, N20619, AA335929, AA373357, N88208, AA335103, AA354131, AA331146, R68603, AA418654, AA424305, AA401527, N41898, AA418592, N32554, W23283, H98948, AA338792, AA365792, AA632452, AA913286, H69272, AA393581, H20850, AA860372, AA738400, R54031, H28843, AA770375, AA004397.
- 10 AA036198, AA637087, AA032895, AA209077, AA789379, AA592501, AA592073, AA644773, AA242321, AA792717, AA832853, AA000175, AA469755, AA106711, W13713, AA222077, AA073729, AA285740, AA030595, AA060539, W89620, AA511743, AA250630, AA048844, W59660, AA008295, AA674262, AA032382, AA388713, AA184844, AA572547, AA242573, AA571603, AA183767, AA432550, AA958947, AA840030, AA023650,
- 15 AA600673, AA250144, AA638019, W09045, W85653, AA110456, W91027, AA612441, AA004012, AA270992, W62605, W08743, AA059946, AA119526, AA754865, AA764519, AA840310, W08102, AA497633, AA623554, W98890, AA874496, AA199485, AA097363, W36345, AA168042, AA754894, W82448, AA163573, AA434940, AA547350, AA073941, AA764527, W29475, W40649, W64225, AA038389, AA111279, AA123833, C89094.
- 20 AA537607, AA624825, AI037102, W12906, W36498, W59419, W84175, AA549721, AA792111, AA637113, AA681507, AA856127, AA647794, AA230498, AA688518, AA693260, W65764, AA060680, AA240323, AA416465, AA800180, AA538785, AA697870, AA979477, AA990772, AA951020, AA952185, AA979349, AA695283, AA820785, AA952207, AA948974, AA735177, AA816464, AA979170, AA978753, AA979400.
- 25 AA820529, AA803706, D74758, C63692, AA696936, AA141449, T14994, T67384, D24498, C09870, C60992, AA728216, AA264936, D15741, AA392598, C19572, AA820594, AA951387, D34231, AA990717, C63656, C73751, AA799765, AA900454, AA941277, AA696002, AA949444, D48341, D46555, D22789, AA060773, AA539041, AA735216, AA696070, AA801874, AA803025, C70534, AA816470, D46840, AA540210, AA440951.

SEQ ID NO: 282

V.

10

DSSIZES

- U75272, J04443, X59754, X04644, M18660, M23070, M23071, M88652, M18661, M18662, M23072, M18659, M23069, M25987, M25988, M18663, M23073, J04601, M20920, M26027, J00281, M59237, M73750, M25985, X59752, X59753, U14406, AF020510, M25989, AF020512, X59755, X53037, M59235, D00215, M88653, AF036953, M20788, AF036319, M25986, J05036, M84418, J00621, L08418, M19006, U90321, M57260, S49650, U19717, M11233, M63135, X05344, M84742, L02636, AF020513, U39199, U94791, U94795, L44118,
- 40 AF020511, L44119, U71218, AF020509, U41166, L34360, U30251, X69193, U71217, L34361, U41165, AA335213, AA335152, AA334918, AA335113, AA335161, AA335108, H58586, AA307644, AA410697, AA074710, AA433879, AA057554, AA603295, H14144, R87854, AA133501, AA628927, AA460349, AA010204, AA633710, N48718, R87863, H61825, AA678843, R60721, W44894, R61717, AA120315, AI035456, AA118517, AA823912,
- 45 W10274, AA562594, AA106277, AA027702, AA107284, AA106186, AA276409, AA920149, AA120316, AA510649, AA407150, AA290382, AA798891, AA139798, AA110217, W34201,

noverder desyst

30

AA981720, AA682039, AA407563, AA275725, AA278042, AA163997, AA013851, AA116782, W71557, W54620, AA462760, AA930892, AA105179, AA797641, AA111685, AA289286, AA198713, W81886, AA105252, AA109146, AA073528, AA044485, W53737, A1049336, AA473147, AA473046, AA108763, AA403734, AA275990, AA207434, AA124846, AA105024, AA104671, AA044497, W12364, W66617, AA987105, AA407149, AA122468, AA511860, AA286094, AA116945, AA472229, AA108747, AA041924, AA9205667, AA793583, AA606307, AA277989, AA1165940, AA06540, AA105348, AA087372, AA062080, AA445409, AA178775, AA108425, AA803939, AA441102, AA246980, AA539362, AA817360, AA950510, AA949225, D70510, D70490, D70773, Z14725, D70266, C11719, D69774, M88822, D68834, D69602, M80169, C11732, AA848792, D69495, D70109, D70271, D70385, AA531934, D69996, AA519302, D69455, C69785, AA520727, D69484, D65766, R04900, H33785, C67195, AA900224.

15 SEO ID NO: 283

M17517, Y00716, M65294, M65292, X56209, X56210, M65293, X64877, X86566, X86567, M12660, M29008, M29009, M29010, M29007, M74165, M96625, AC000077, M96624, Z81528, X98337, A1038982, AA022784, AA425660, AA703392, AA090379, W72541, A1004263, AA906235, AA777373, AA193302, W76166, N40593, AA022691, W88788, AA705945, N25878, AA235873, AA625237, H29609, AA573463, R29055, T55384, N11188, AA625190, T59649, N25887, AA953249, AA775652, R12676, T69578, N21984, AA236071, D57562, T54714, W86984, T54632, AA427785, H60551, W86811, W88909, N40585, T24039, F01572, T55812, N75352, T78003, AA669288, D58028, R08164, D57906, AA194256, R16414, D57905, W88700, AA682307, AA571970, AA063356, H62542, R98133, AA081164, T56279, T67925, W88700, AA682307, AA571722, AA244607, AA276818, AA260552, AA208972, AA237589, AA212982, AA261571, AA212880, AA421019, AA238582, AA237849, AA2590619, D34666.

SEO ID NO: 284

D88532, AF028785, AF036256, D64047, S79169, U50413, M60651, D64048, D78486, M61906, D64045, M61746, M61745, U50414, X80907, D64046, U50412, Y13569, AF009255, X83378, AE000658, K02396, D28475, U85195, Z00044, AL021155, X82465, AJ002236, AP000009, D63325, AJ002235, AE001129, M91283, D83253, U39649, AA075494, N21330, R54049, AA018739, H52531, H82380, R85888, W73782, T53869, T64168, AA813369, T54819, R09741, W56349, W02204, T62075, Al026072, AA865771, AA042928, C20611,

- 40 H71214, T55195, AA564203, H65051, R88702, R88698, AA908176, AA507448, T62131, T62083, AA858349, AA723324, T59111, W32364, AA357336, AA251725, R88705, T61839, T28286, R98411, Al014817, W87786, Al040701, AA846592, AA723344, R94971, H65604, T10766, R99231, AA833220, AA250367, AA249920, AA592066, AA146187, AA914951, C80981, AA617615, C78737, AA087285, AA124669, AA213231, AA242635, C80959, AA26727, AA167615, C78737, AA087285, AA124669, AA213231, AA242635, C80959, AA26727, AA167615, C78737, AA087285, AA124669, AA213231, AA242635, C80959, AA26727, AA167615, C78737, AA087285, AA124669, AA213231, AA242637, AA26727, AA167265, AA167616, C78737, AA087285, AA124669, AA213231, AA242637, AA26727, AA167265, AA167616, C78737, AA087285, AA124669, AA213231, AA242637, AA26727, AA167265, AA167616, AA57286, AA16728, AA167287, AA167287, AA87285, AA124669, AA213231, AA242635, C80959, AA26727, AA167265, AA167286, AA167286, AA167287, AA87285, AA124669, AA213231, AA242637, AA267287, AA87285, AA124669, AA213231, AA242637, AA87285, AA124669, AA213231, AA242637, AA267287, AA87285, AA124669, AA267287, AA87285, AA124669, AA267287, AA87285, AA124669, AA213231, AA242637, AA87285, AA124669, AA267287, AA87285, AA124687, AA87285, AA124689, AA267287, AA87285, AA124689, AA267287, AA87287, AA8
- 45 AA638927, AA107925, AA199106, AA268049, AA921268, AA116322, AA125232, AA408335, AA198281, AA066944, C80853, AA409335, AA691547, AA265444, AA241926,

AA691242, AA183017, Al021016, AA790938, AA921270, AA646703, AA553050, AA265416, W64949, AA589897, AA254757, AA125116, AA797171, C79362, AA107695, AA943105, N97745, AI008923, R05129, AI043853, AA964826, AI030758, C12414, L33655, R03952, AA965042, C73692, C24372, AA728341, AA841492, AA840909, AA841684, D36214.

SEQ ID NO: 285

D88532, S79169, Z49153, Z82243, N63056, H13935, T55806, R53696, R14926, AA425207,
AA328348, R00775, AA499102, D33132, T00309, D41692, C54032, C36448, C32054,
C29823, D34220, D34328, N81299, D73041, C84837, AA849064, T00207, T02429, T00021.

SEQ ID NO: 286

15

U47105, AF027974, AF006487, AF002995, U50986, Z66227, Z68161, Z81367, AF016656, AA207195, X96621, AA025994, W68346, AA215333, R91924, AA258838, W31729, AA340774, H50258, N72471, H46065, AI035956, AA542213, AA423626, W44192, AA914316, AA154504, AA822050, AA155013, AA261383, W65613, AA967254, AA538089, AA590442, AA207849, AA682083, AA727382, AA538126, AA794859, F14947, AF071386, C89989, AI034805, AA440688.

SEQ ID NO: 287

25

, U47105, U82671, AF027974, AF006487, AL021127, AE001011, AC002531, AA595924, AA970705, AA775541, AA303864, AA293041, AA587295, AA293433, H45313, AA4366425, H25827, AA603051, AA449670, C00427, AA448943, AA283127, W77774, R47308, AA903857, AA868734, AA367163, AA863171, AA248935, N69273, AA592904, Al023105,

- AA029848, AA843311, AA039335, T56260, AA808705, AA233035, AA526128, AA258137, H18527, AA580114, A1032602, W95094, AA017384, AA052968, AA525766, AA548114, AI023410, F02503, T58982, N63264, H80259, AA232906, T28843, AA114931, AA011568, AA582936, AA837733, AA287367, AA191597, W94481, AA011589, T28457, AA895047, W91264, AA529720, AA529718, AA103124, W65613, AI006299, AA620208, AA438081,
- 5 AA666705, AA272597, AA645092, AI046902, AA611705, AA254185, AA105189, AA230667, W76975, AA734359, AA008675, AA963701, AI009597, AA801365, AI012213, AA786960, AA123600.

40 SEQ ID NO: 288

X59417, X61972, D10755, AF056191, M55440, S58126, Z72533, M63641, Z35719, L11235, D82813, D82812, M22647, AC003026, AA029397, AA837580, W23501, AA488257, AA890664, AA632149, W53005, AA703270, AA446816, AA890484, W44361, AA316602,

45 AA716489, W44618, W20013, AA843688, W52807, AA526876, W39027, W38864, W49827, AA315539, W60039, W40517, W03417, AA583625, W17240, W67897, W19376, AA126319,

W32916, AA315426, AA772085, W46657, W31060, W37276, W94046, AA860293, AA044357, AI024374, W77914, W40204, AA523299, W24607, R52324, AA505371, AI034269, AA448491, AA844258, AI041663, N50564, H21413, W47241, AA807830, N29205, W00352, AA372064, T29583, AI014835, AA329485, AA716549, AA612828, T89588.

- 5 AA861938, AA045467, AA661664, W94047, AA044173, AA863108, T95448, AA488200, N93220, AA570625, AA612774, AA716138, N50621, AI052107, AA916452, AA861538, AA301799, AI032881, AA722960, AA652222, AA946746, H06545, W05095, W53006, AA860602, AA973433, AI026047, AA84370, AA706945, AA229044, N50137, W44599, AA164391, AA353184, AA724169, AA989387, AI001105, AA691775, AA097862, AA498382, AA397046, AA271066, W53306, AA268346, AA277305, AA000087, AA220352, W89739,
 10
- AA397046, AA271066, W53306, AA268346, AA277305, AA000087, AA220352, W89739, AA871023, AA162010, W88224, W82532, AA575645, AA270450, W88232, AA242703, AA839488, W17811, W97567, AA671592, AA032731, W09846, AA221254, W41346, AA538441, W47982, AA717658, AA688641, AA268955, W65737, W33599, W33767, AA049737, W87250, AA616680, W59092, W90853, W35027, W83566, AA185007, C88831, AA265206, AA270886, W83677, AA259567, AA60911, AA795148, W10775, W34508.
- 15 AA265206, AA270886, W8367/, AA25956/, AA606911, AA/95148, W107/5, W3408, AA218361, W87249, W83252, W16175, W14877, W43998, AA212735, AA645199, AA537233, AA606957, C80591, AA209125, AA990184, AA162620, AA060428, AA212696, AA530006, AA002827, AA223005, AA096799, W97578, AA874315, AA198183, AA220423, AA218100, AA914167, AA795267, AA800187, AA799492, H34953, AI013983, H35366,
- 20 AA685335, AA686270, AA875494, AA686088, AA686145, AI011257, AA891199, AA893051, AA891534, AA818104, AA875736, T14568, D40057, C91136, D48504, C68337, C68653, AA051948, T43303, C23342, AA856236, AI030734.

- M27319, X61432, X13933, M19381, D83350, M18355, U12475, X04271, K01944, M19311, U44758, D45887, K01945, M36167, U12022, X56888, M27844, D10366, M19312, M17069, L31642, M16659, X13817, X52956, M19380, X52955, D10363, X05117, J04046, U37573,
- 30 Y09863, AB003083, AB003081, AB003082, X64654, D10365, D10364, Y09880, U12435, J00931, Y16849, M36168, M13009, Y13578, U94728, X13835, Z97178, AF064552, U39066, AF045432, X56950, M59770, M99442, X59751, Y14765, J04729, L01430, U20294, U48696, X97558, X60737, L01432, X60738, X64653, X89890, L14071, X13907, U48697, Y16851, L00100, U20295, M34540, S68025, AF034988, M17068, U83402, X98404, M64089, U48242,
- 35 U48688, U13882, X97612, D10521, X14264, M80836, Y08373, M80831, AJ001092, X52242, X14265, J05116, U04381, U20292, U20297, U20293, M38380, U20296, M67472, Y00133, X52608, AA085590, AA972855, AA292469, W65332, R95997, AA070962, AA352515, AA039463, AA765750, F08797, AA070961, AA319858, H21692, AI025181, F08188, AA311828, AA307719, AA617697, H77337, AA056365, AA165448, AA081324, AA062559.
- 40 R70835, AA130210, AA151806, T55981, AA315518, AA626500, AA307905, D12146, D56375, AA984790, H60495, C04208, AA363570, AA054976, C05451, C01012, AA188391, Z20627, AA169549, AA337644, AA187557, AA296205, AA337447, F01073, W61315, AA083265, AA319707, AA111941, AA923140, C03719, AA039464, AA375959, AA151831, N33911, W39415, R57734, AA361370, AA099807, T75291, AA214472, AA121188,
- 45 AA319743, H17218, AA316337, AA318880, AA083768, N31129, D53196, W28491, AA349121, AA383516, AA101256, AA563836, D54237, AA345083, C05135, D55607,

D82230, D56108, AA330164, AA081812, D82174, D54621, R58725, AA344038, D55422, D58643, AA188404, F13050, AA294980, AA662790, AA165647, N75782, AA668657, D54176, AA385814, AA703708, AA415552, C88073, AA684027, AA711831, AA590586, AA656912, AA409434, AA616371, AA684346, AA611591, AA028347, AA272608, C85276.

- 5 AA407900, AA880156, AA028602, AA674705, C88521, AA058146, AA060730, AA538358, AA547523, AA399884, AA116810, AA000519, AA413971, AA646840, AA681659, AA245104, AA590867, W89787, AA499937, AA718454, AA645997, AA036006, AA608170, AA671896, W48389, AA645276, AA241991, AA798647, AA871164, AA608474, AA5755623, AA871618, AA466257, AA794576, AA673197, AA637500, AA161802, AA245260.
- 10 AA755895, AA498530, AA465791, W75527, AA615781, AA271946, C80799, AA475171, W08912, AA397196, AA416209, AA413922, AA016646, AA693118, AA636900, AA003640, AA408646, AA036269, AA105846, AA624250, AA030062, AA032334, W90914, AA087002, AA071816, AA030407, AA597155, AA060724, AA242001, AA789949, AA789947, AA536983, AA253792, AA615118, AA518033, AA02896, AA770786, W89469, AA273913.
- 15 AA674151, AA238734, AA008724, AA023153, AA104496, AA105039, AA791596, W83513, AA103089, C88628, AA859997, H31806, AI011090, AA851101, F14583, AA991006, C88396, H34918, AA684870, T36983, AA660699, AA933275, C94461, C92685, AA933095, C93709, C91967, AA933356, C91342, AA933125, C90427, C89654, C94390, AA933350, AA933204, AA933184, AA933186, AA933185, AA933317, AA660727, AA933353, AA685047,
- AA933347, AA933216, AA933241, T23115, C93839, AA933116, AA660906, AA933094, AT000091, W78687, C90863, AA666880, AA224655, AA660338, AA660367, AA753213, D15295, AA720465, AA933111, AA685917, AA803928, D24337, D15079, D41425, D40858, AA933122, AA687065, N65851, AA754402, AA933318, N97037, AA713132, T20450, R90459, AA754338, AA712683, N65115, N38419, AA713276, W49440, AA751750,
 AA803172, AA686881, AA686535, C73257, AA750187, N25393, AA804151, AA825103,
- AA696613, N37441, Z26721, N38659, H77207, AA7411921, W63459, AA933260, N28040, AA696613, N37441, Z26721, N38659, H77207, AA741921, W63459, AA933260, N28040, AA684544, AA264512, AA660937, C06757, N28049, C29359, AA754104, AA825102, AA754642, AA751583.

SEQ ID NO: 290

M27319, X61432, X13933, M19381, U12475, D83350, M18355, K01944, X04271, U44758, M19311, D45887, U12022, M36167, K01945, X56888, M27844, M19312, M17069, L31642, 35 D10366, X05117, X13817, M16659, M19380, X52956, X52955, J04046, X64654, D103665, U12435, D10363, AB003083, U94728, M13009, AB003081, Y09863, J00931, M36168, D10364, Y09880, AB003082, Y13578, L00100, X13835, X13907, M59770, X56950, M99442, J04729, M34540, S68025, M64089, M16475, Z95395, AF034988, X14264, L00099, Y14765, D10521, AF064552, M17068, L01432, U12505, U20294, U48689, X14265, U48242, U48688,

- 40 X59751, Y08373, L01430, U20296, U20293, U20297, X60737, L20507, X60738, U20291, U20292, M80836, U83402, X98404, J05116, U13882, L14071, X89890, X52242, X56511, M73711, M73712, M67472, U10150, X52608, K02944, U04381, U20295, M80831, Z12024, M88307, AA085590, AA972855, AA292469, W65332, R95997, AA070962, AA352515, AA039463, AA765750, F08797, AA070961, H21692, AI025181, F08188, AA617697, H77337,
- 45 R70835, AA130210, AA307719, T55981, AA311828, AA319858, D12146, D56375, H60495, AA056365, AA165448, AA081324, AA984790, AA062559, C04208, AA151806, AA363570,

AA315518, AA626500, C05451, AA054976, C01012, AA307905, AA337644, AA296205, AA337447, F01073, W61315, AA319707, AA188391, AA039464, AA923140, AA169549, AA187557, AA151831, C03719, R57734, AA083265, AA563836, AA375959, AA316337, AA330164, W28491, N33911, AA318880, W39415, AA121188, AA361370, N75786

- 5 AA214472, AA319743, H17218, AA165647, T75291, AA668657, AA083768, N31129, D53196, AA349121, AA101256, AA383516, AA662790, AA328474, D54237, AA345083, D82174, D54176, AA384885, AA082880, AI001786, D82230, AA081812, D54621, AA111941, R58725, AA344038, D55422, AA169417, D58643, AA167154, AA188404, AA577290, AA703708, AA385814, C88073, AA684027, AA415552, AA409434, C85276, AA656912, AA407900, AA674705, AA590586, AA711831, AA547523, AA616371, AA399884.
 10 AA407900, AA674705, AA590586, AA711831, AA547523, AA616371, AA399884.
- AA4017900, AA6174/05, AA590586, AA711831, AA547523, AA61637, AA399884,
 AA611591, AA684346, AA116810, AA028347, AA646840, AA7272608, AA413971,
 AA880156, AA028602, AA590867, AA718454, AA058146, AA060730, AA645997, C88521,
 AA538358, AA608170, AA645276, W48389, AA241991, AA000519, AA681659, AA245104,
 W89787, AA608474, AA794576, AA499937, AA161802, AA798647, AA671896, AA036006,
 W75527, AA871164, C80799, AA397196, AA575623, AA245260, AA636900, AA466257,
 AA673197, AA871618, AA615118, AA637500, AA271946, AA758895, AA796872,
 AA615781, AA465791, AA498530, D19438, AA475171, AA408646, AA416209, AA413574,
 AA036269, AA597155, AA105846, AA030062, AA032334, W90914, AA087002, AA071816.
- AA220765, AA030407, AA624250, AA060724, AA242001, AA789949, AA789947,
 AA253792, AA273913, AA238734, AA408862, W89469, AA518033, AA408836, AA674151,
 AA002896, AA770786, AA008724, AA794495, AA791596, AA104496, AA105039,
 AA239736, AA023153, C88628, AA859997, H31806, AI011090, AA851101, AA991006,
 F14583, T36983, C88396, H34918, AA684870, C90427, C91967, C92685, C94390, C89654,
 C93709, C91342, C94461, T23115, C93839, AA685047, C90863, AA224655, W78687,
- AA660367, AA660338, AT000091, AA685917, AA686880, N96999, C29359, AA687065,
 C38862, AA720465, N61249, W66047, W63459, C49579, N65851, T44316, AA657305,
 C43376, N38696, C38711, N38419, AA686881, AA042238, AA686535, D15295, C73257,
 AA941526, AA264512, AA650766, C38542, Z26721, N65115, D24337, N38659, H31995,
 AA684544, D15079, D41425, D40858, H77207, D39557, D39547, N37441, AA824832.
- 30 Z17617, Z47664, AA686700, T46639, W43843, AA751471, AA525619, C57747, AI008629, AI008527, AA891246.

SEQ ID NO: 291

35

- U75272, J04443, X59754, M23077, M18667, M18665, M23075, M23074, M18666, M23076, M18664, M18663, M23073, M88652, M25993, X04644, M73750, M59235, M19698, M20920, M59237, M23165, M26031, J00285, X59755, X59752, D45187, D38104, L08418, Y10928, M88653, M20788, J04601, X97399, J05036, M25990, M25989, M84422, D90905, M84424,
- 40 X69465, X59753, Z36158, X76053, Y11668, Z36157, M36482, U94791, AA906670, AA534285, AA334924, AA335157, T28355, AA335226, AA335225, AA335151, AA334923, AA335205, AA335206, T62158, T61932, AA335201, AA335145, AA335143, AA335110, AA334925, AA335896, AA679226, H78707, AA282121, F15763, R88501, R17479, W52843, AA410887, N20475, R61184, AA368515, R72703, AA326537, AA641710, AA402165,
- 45 R56461, W13531, AA172581, AA562772, AA739244, D40781, AA858922, AA892100, AA850427, AA097166, AA957918.

SEQ ID NO: 292

- D89937, U06863, M91380, U06864, X64696, D90880, AE000337, AL008732, M30023, AF033384, M32756, X60598, M76370, M88479, AA545793, AA853932, AA853320, R57888, N86419, AA368106, AA852349, Z17837, H71176, AA694482, H56510, H86231, A1035782, AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, W71206, A1006564, AA985693, W71004, AA117341, AA272103, AA727322, AA672588, AA895542, AA288633, AA530779, AA561591, AA796608, AA163681, AA986542, AA242144, AA011746.
- 10 AA968036, AA798873, W57000, AA561558, AA521529, AA511056, W18392, W30149, AA794167, AA003227, AA982579, W16213, AA118845, AA000673, C88553, AA270970, AA790713, AA518980, AA271934, AA815597, AA799007, AA727527, W91212, AA422990, AA272032, AA162257, AA066635, AA755726, AA388352, W78403, AA445170, AI036864, AI049079, AA474520, AA231301, W96942, AA798552, AA6152270, AA122523, AA495069, D35571, D39195, T44187, D67318, D67156, C27163, T41576.

SEQ ID NO: 293

- 20 AC004770, Z68106, Z71260, Z85994, AL021939, Z75714, X54029, U53181, U21323, AE000348, U36840, U52516, AA716497, H98974, AA703998, AA044900, AA044689, AA031932, AA491463, AA599783, AA032050, AA186359, AA173933, AA600033, H97601, W63570, AA627069, W72045, AA548128, AA088246, W58303, AA669937, AA025046, W52070, AI041635, H97416, W52215, H97549, AA137262, W46845, W92629, AA026782.
- 25 W76397, AA661793, W94840, AA128494, N79437, W46494, AA595373, W78218, N23437, W94418, W46918, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105, W42793, W96120, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651, R95788, N67716, N58122, T47507, A1025353, AA888923, R56693, W96121, AA788950, AA722567, W74255, AA987381, AA565505, W51762, N70652, AA188212, AA026781.
- 30 R87166, AA501650, T33491, AA025047, W17326, R28503, R95744, AA903702, AA480682, R07697, AA664567, N73609, R39109, AA988438, R87165, AA666225, N44927, AA886647, AA599854, T62853, T90854, AA987862, AA853933, AA853321, R83373, C00827, AA822923, AA795295, AA267575, A1047069, N28086, AA958820, AA864074, R75316, AA066112, AA212095, AA596781, AA870117, AA646803, AA542310, AA0328722,
- 35 AA444992, AA096915, AA030466, AA408990, AA617457, AA413993, AA065944, AA624775, AA555747, AA611700, AA242296, AA177250, AA521523, W09897, C94851, AA859885, D68452, C69362, AA054909, AI044075, AA063739, C89702, AA944417, C23818, AA893454, AA893469.

SEQ ID NO: 294

40

D89937, U06863, M91380, U06864, X68830, AE000337, D90880, X64696, AL008732, AL009031, M32756, AC002326, AA545793, AA853320, N86419, AA852349, Z17837,

45 AA853932, R57888, AA429966, AA368106, N44297, AA434575, AA694482, AA770656, T49317, N45937, H56510, H59509, H86231, AI035782, AA030804, AA033212, AA049640,

10

AA734288, AA838966, AA734000, W71206, AA929708, AA939398, AI006564, W39990, W39917, AA985693, W71004, W35012, W45885, W65892, AA117341, AA014882, AA037985, AA036185, W70655, AA049849, AA170363, AA681172, AA286069, AA763976, AA543854, W33683, C82438, C8244, AA495069, 234605, D35571, D39195, Z30794,

5 Z35347, T42689, AA848947, AA900181, AA819765, AI010160, C22676, AA819768, T44187, C72525, AA859059, AA848693, AA945652, F14806, AA264114, AA946271, AI009795, AA201180, AI013811, N60116, AA990819, AA946195, AA945977, D67156, C22372, AA735165, D67318, AA819575, AA438989, AI011641, AI009627, AA848695, T41576, AA753416, AA848791.

SEO ID NO: 295

AC004770, Z68106, Z85994, Z71260, X17403, AL021939, Z75714, AE000348, AC000392. U21323, U36840, L12104, AA716497, H98974, AA703998, AA044900, AA044689, AA031932, AA491463, AA032050, AA599783, AA186359, AA173933, AA600033, H97601, AA627069, W72045, W58303, AA548128, AA025046, AA088246, W63570, AA669937. H97416, W52215, AI041635, H97549, W52070, AA137262, W46845, W92629, AA026782, W76397, AA661793, W94840, AA128494, N79437, W46494, AA595373, W78218, N23437, W94418, W46918, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105. W42793, W96120, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651, N67716, N58122, T47507, AI025353, AA888923, W96121, AA788950, AA722567, W74255, R56693, AA987381, AA565505, W51762, N70652, R87166, R95788, AA501650, T33491, W17326, R28503, AA025047, R95744, AA903702, AA480682, R07697, AA026781, AA664567, N73609, R39109, AA988438, W47034, AA666225, AA886647, AA599854, T62853, R81056, T90854, AA987862, AA853933, AA853321, R83373, AA599400, C00827, AA795295, AA822923, AI048751, AI047069, AA833312, AA267575, AA028683, AA462435, AA189904, AA838967, W77258, AA492644, AA190010, W83140, AA624775, AA059792, AA958820, AA864074, AA265204, N28086, AA542310, AA432856, C94851, AA859885, D68452, AI009603, AA063739, AA925505, AA054909, C23818, AA893454, AA996570,

SEQ ID NO: 296

AA438982, AA893469, AA997787.

AC004770, Z68106, AL021939, Z71260, Z85994, Z75714, U21323, AC002332, AB008430, AE000348, U36840, AA703998, AA716497, H98974, AA044900, AA491463, AA031932, AA599783, AA600033, AA173933, AA186359, H97601, AA627069, AA044689, W72045, AA548128, AA088246, AA669937, Al041635, H97549, AA032050, AA137262, W46845, W94840, H97416, AA661793, AA026782, W92629, N79437, W46494, W58303, AA595373, W78218, N23437, W94418, N34381, W76397, W46790, AA583657, AA599353, AA961557, W58194, N33105, W46918, W42793, W52215, W96120, H50538, W52141, W81572, AA593009, AA983246, AA025046, H97340, AA147651, W63570, N67716, N58122, T47507, A1025353, W96121, AA888923, AA788950, AA722567, W74255, AA987381, AA565505, W51762, N70652, R56693, R87166, T33491, AA025047, AA128494, W52070, R95744, AA903702, AA480682, AA664567, N73609, R39109, AA988438, AA666225, AA886647,

AA599854, T62853, T90854, AA987862, AA853933, AA853321, AA501650, W17326, R83373, AA599400, C00827, N94338, Z38867, N29399, T54372, H14477, AA719902, AA822923, AA795295, AA267575, AI047069, AA864074, N28086, AA542310, AA958820, C94851, AA859885, D68452, AA063739, AA054909, AA893454, AA893469.

SEQ ID NO: 297

5

Z68106, AC004770, AL021939, Z85994, Z75714, X17403, U21323, U36840, Z81140. 10 AE000348, Z75546, Z54269, Z77663, U73826, Z78410, AF000266, AA716497, H98974. AA703998, AA044900, AA044689, AA031932, AA491463, AA032050, AA599783, AA186359, AA173933, AA600033, H97601, W63570, AA627069, W72045, AA025046. W58303, AA548128, AA088246, AA669937, W52215, H97416, W52070, AI041635, H97549, AA137262, W46845, W92629, AA026782, W76397, AA661793, AA128494, W94840. 15 N79437, W46494, AA595373, W78218, N23437, W94418, W46918, N34381, W46790. AA583657, AA599353, AA961557, W58194, N33105, W42793, W96120, H50538, W52141. W81572, AA593009, AA983246, AA147651, H97340, R95788, N67716, N58122, T47507. AI025353, AA888923, W96121, AA722567, AA788950, W74255, AA565505, R56693 AA987381, W51762, N70652, R87166, AA026781, AA188212, T33491, W17326, AA501650. AA025047, AA903702, AA480682, R28503, R95744, R07697, AA988438, AA664567. N73609, R39109, AA666225, AA886647, AA599854, T62853, R87165, T90854, N44927, AA853933, AA853321, AA987862, R83373, C00827, AA822923, AA795295, AA734859, AI047069, AA215119, AA237684, AA267575, AA859885, C94851, D68452, AA063739, AA054909.

SEQ ID NO: 298

L01042, U12965, L78442, AC002091, AC003695, Z84469, Z81479, Z81367, U61955,
 AA626005, AA831000, AA758593, N41155, N32581, AA431387, H61959, R12838,
 AA470066, N59643, AA694484, W86025, A1041095, W19922, R14606, A1016922, A1002718,
 C81060, AA563173, AA152706, AA666594, W15042, A1036790, AA841581, AA701823,
 C65022, D35680, AA841659, AA841976, C48782, AA841736, H32842, AA801157, C67633,
 AA754415, AA606197, C56870, A1035162, C52552, AA998683, D33223, N43590, N69627,
 AA879364, T13937, AA990970, D39194, C94099, AA433194, T01165, C72289, C61178,
 C51688, AA892062, C25009, C94010, C24896, H33580, D49144, D28016, AA819745,
 AA892203, A1026247, D75211.

40 SEQ ID NO: 299

U50311, Z99127, Z82090, AF025451, X15853, U50071, X70810, AA287535, W03007, AA252318, AA813176, C75334, D57732, R79599, AA328247, R79598, D57952, D25592, R63235, R80014, R63275, AA047337, R63288, AA745498, N32931, AA296386, R93964, N76780, T36336.

SEQ ID NO: 300

L01042, U12965, L08472, AC004496, AA001194, AA594960, AA742241, AA401664, AA400306, AA923815, AA810266, AA961883, A1002718, AA766247, AA620608, AA761978, AA318561, AA831353, AA830332, AA789926, AA153292, AA162566, AA189920, AA874294, AA855391, AA175181, W34970, AA990174, AA710982, W08075, AA174619, AA689968, W75898, AA733271, AA155251, AA170158, AA709655, AA734797, AA267186, C90589, C90931, C48782, C65022, D35680, A1043591, AT000322, C72289, C61178, AA819745, AA892203, T01165, H33580, D28016, D37698, C51688, AA892062, D33223, AI045841, C84799, C52552.

SEQ ID NO: 301

, Z92543, M94286, Z15118, X79345, AL008989, AC003700, X51471, X83994, Z82073, Z82090, Z32683, L34876, AC004679, U23182, L48177, X14804, AA287535, AA252318, C75334, W03007, AA813176, R63275, R63288, AA745498, AA047337, D57732. AA328247, R79599, D57952, R80014, R79598, D25592, R63235, AA804882, N32931, AA774765, AA678473, AA653298, AA283267, N23096, AA723004, AA838762, N23088, AA499027, AA183288, AA941813, AA697077, N97751, AA949229, C84216, N20702, C91523, R65454, AA550463, AA958050, F15230, C42134, AA850568, AI035083, AA859433, D34651, AA736240.

SEO ID NO: 302

, AP000015, AE001115, AJ224476, AB011483, Z92543, Z66498, AL008989, X79345, X69126, Z47356, AL021940, X51471, Z82090, AC002519, X51802, Z81114, U14101, L48177, U14102, Z78022, AC003700, U90093, AC004679, X14804, K02803, AE000665, L34876, C75334, AA287535, AA252318, W03007, AA813176, D57732, R63275, R63288, AA328247, R79599, 30 AA745498, AA047337, R63235, R80014, R79598, D57952, D25592, AA804882, N32931, N62031, AI017596, AA286861, AA723004, AA147600, N27870, AA204787, AA766278, AA037614, AI050927, R44996, AA283267, N53090, W19951, R38077, N23096, H06680, AA350808, AA806909, R01137, N23088, AA286751, AA346316, AA969786, AI017579, T48651, AA027226, W67240, AA318128, AA701647, AA577740, AA773071, AA838762, 35 T63624, AA948339, AA296386, AA142481, AA499027, Z36309, AA064091, AA117297, AA512137, AA388064, AA267691, AA833044, AA387982, AA869126, AA163118, AA174989, AA941813, AA697077, N97751, AA949229, C91523, N20702, C22914, AA850568, AI035083, AA924780, AA114404, AA550463, AA696948, AA951599, T36336.

40 AA736240, F15230.

SEO ID NO: 303

45 L01042, Z54865, X59711, Z50071, M77245, U73458, Z71347, Z50735, X91803, J04096, X99537, U01158, U05294, X86470, AC003972, AA309347, AA722684, AA224465, W19444,

AA958050, AA263717, AA891660, AA901213, AA924291, AA941895, AA946463,

AA468581, AA176346, R13076, R98448, AA045309, AA669942, AA516399, AA311187, AA232313, AA218947, H77580, AA587675, AA534810, AA463631, AA602680, AA025677, H90532, AA813080, AA582946, AA147286, Z39687, AA687231, AA481499, AA348055, AA223944, AA493565, AA443177, W93645, W42707, R98449, R15638, T79861, AA855130.

- 5 AA760706, AA025676, N32138, R96927, T33266, AA910590, AA642174, AA476895, AA159578, AA127278, AA037036, T89285, AI002362, AA714970, AA178846, AA040539, W96486, AA143770, F19435, R65637, AA638668, AA050845, AA450612, AA237427, AA103887, AA466432, AA122463, AA098100, AA674951, AA499697, AA271280, AA815547, AA672068, AA432539, AA110731, W08834, W15672, AA738668, AA617191.
- 0 AA212974, AA930798, AA116717, W48275, AA004000, W08053, AA790851, AA623308, AA611070, AA606809, AA473063, AA285443, AA266142, AA080212, W08178, AA048341, AA009176, AA656426, AA655843, AA000140, AA44531, AA273596, AA116742, AA109939, AA445284, AA466501, AA498742, AA275978, AA614911, AA108635, AA265513, AA145957, AA105792, AA105743, AA063836, AA000715, W41246, W34655.

AA518871, AA445423, AA403873, AA221387, AA116578, AA254772, AA821463.

AA710561, AA500563, AA137789, AA034735, AA030888, AA734319, AA718467,
AA435019, AA276170, AA273541, AA207749, AA124101, AA120318, AA086663,
AA727731, W53320, W48551, W17604, W13222, AA499120, AA250660, AA125066,
AA657239, AA709861, AA052106, AA118988, AA170286, AA163903, AA516863,
20 AA670545, AA691283, Al037272, Al050482, Al045428, AA996720, Al030004, H32511,
C63380, AA900476, Al014091, F15107, D35735, Al013879, H35232, AA685207, AA754479,
AA685746, Al009720, AA894046, AA998190, AA818593, AA891532, AA960722, Al014069,

AA955102, AA979976, AI030621, AA848774, AA698615, AA946050, AA108294, AA925224, AA955622, AA849328, AI008147, AA899774, H35402, AA952351, AA924715, AI013403.

SEQ ID NO: 304

ľu

QUQ

25

U07563, AC000118, Z49866, Z98950, Z70280, AC004217, AC003108, AC002041, AD000813, X76498, U73640, U14573, AC002301, AC004231, AF045555, AC002303, AB002353, AC002988, AC002316, D38081, AC002107, AC004678, AC002398, AC003086, Z95115, AC002477, AC004699, Z97054, AC004056, AL021154, AL022322, AL021546, AP000045, Z85996, AF001551, AC002045, Z98048, AC004656, Z94056, AC002314, AL020997, AC002553, AC004491, Z97181, L78810, AC004703, AF038458, Z82215, U62293, U78027, Z84480, AL008710, AC004126, AF064858, Z92546, U14574, Z82206, AC002565, AC002404, AC002476, Z95152, U95742, AC003663, AC004687, AC003072, Z97184, Z75407, Z82194, AF017104, AP000031, AC002554, Z84814, AC002040, Z82203, AP000011, AL022165, AL021878, AC005247, AC004777, U91323, AL031005, AC000120, Z98036, AC003038, Z95113, AF001549, AC004447, Z84469, AC004263, AC005152, AC002551, Z85994, X54486

- 40 M30688, AC002094, AC000003, AL008725, AC004076, AC004003, U32576, N72305, N40630, H26274, H25696, AA904211, H07953, T74524, W03007, AA297666, AA468505, AA084609, AA833896, AA833875, AA614254, AA228368, N73060, AA621381, AA053463, AA483606, AA133332, AA568204, AA570740, AA425924, AA715173, H71678, AA715075, AA491527, AA468371, AA230025, AA536040, AA303054, AA612727, AA613761,
- 45 AA856961, AA584655, AA467760, AA483075, AA719845, AA297670, AA302661, AA664126, AA574286, F13749, AA535216, AA602906, AA233509, AA622801, T54783,

DOFFINIONO, OMOVOD

H90114, AA603413, AA224889, C15363, AA587215, AA515728, AA489766, AA492298, T67090, AA228269, AA482928, AA491767, AA493464, AA130647, C75403, C75526, F19373, AA584482, AI050076, AA757426, AA133013, AA224815, AI038304, AA12899, AA573067, AA721645, AA640826, T70299, H13120, T46960, AI003086, AA550989, AA224816.

- 5 AA070614, AA526099, AA654874, AA564582, N57781, AA513846, N23504, AA209415, AA224966, AA846923, IR2679, AA847499, AA668587, AA523203, AA523204, AA583394, AA626567, AA132765, AI051656, AA823826, W51648, AA501297, C88111, W64164, AA517461, W64884, AA415875, AA863851, AA516629, AA516955, C87922, C86532, W62449, C88193, W61986, W62377, W71517, C87864, AA474026,
- W77222, AA501262, AA501128, C80822, AI042687, C87438, AA544076, AA518813, AA939867, AA563185, AA711962, AA764103, AA864092, AA727828, AA096630, AA067033, W45941, AA114713, AA709758, C87581, AA920903, AA175601, AA881230, AA939912, AA086548, AA832680, AA175695, C87512, AA881598, AI006950, C79702, AA473085, AA915562, W10055, AA435247, AI046782, AA397202, AA792326, AA821875,
- AA260746, AA462161, AA237411, W40894, AA571579, AA036275, AA636491, C78473, AA671494, W12161, AA770935, AA727156, AI042727, AA259770, AA896910, C78144, AA511247, AA004162, AA833114, AI036356, AA273651, AA166007, AA462759, AA117299, AA561474, AA422857, AA170588, AA799246, AI006432, AA184613, AA517834, AA611534, AI044039, AA550283, H39328, H39389, W06387, W06750, H39426, AF064463, Z69957, H39351, AA923995, AA107123, AI044651, H34360, AA943478, AA900983, AA850322,
- AA439604, AI009786, AI009724, C07070, AA943496, AA964894, AI013331, AA997321, AA851016, AA851041, AA925284, AA819889, AI028846, C06795, C91523, AI007545, AA892670, AI013373, AA957648, AA140615, N38007, H36130, C44202, AI030013, H35257, AA893817, H39330, AA957649, AI010426, AA944794, AA963620, AI010756, AA891772,
- AA800253, AA893373, T02678, AA874831, AA926052, AA945031, AA540237, AA541099, AA892461, AA924449, A1029973, N97960, AA849983, AA925965, AA439515, AA538568, C25826, AA800915, AA849887, AA891273, AA923898, AA948884, A1008183, A1043956, AA056877, AA441346, AA201570, AA202864, AA874861, AA924761, AA997451, AA979044, H35341, AA264062, AA859834, AA201518, AA942692, AA950570, AA943694.
 - AA9/9044, H35341, AA204062, AA839834, AA201318, AA342092, AA930370, AA943094, AI009859, AA964515, AA978912.

- 35 L01042, Z54865, M77245, X59711, Z50071, X91803, J04096, Z50735, AC003986, X99537, AC003972, X86470, Z71347, U39442, U01158, AC004031, U73458, U05294, H28333, AA309347, H24941, AA855130, R15638, AA602680, R07992, AA622931, AA760706, AA622923, AA127278, AA693321, R98449, R96927, N32138, R13076, AA476895, AA040539, AA037036, W80852, H88068, H15767, T89285, T79861, AA910590, W72947.
- AA642174, AA284563, AA159578, AA143770, N92984, AI002362, H21882, R65637,
 AA760948, AA178846, W96486, F19435, AA659736, AA459412, AA400812, W19444,
 H25772, AA934980, AA722684, AA669942, AA555111, AA443177, AA176346, W88820,
 H77580, T83333, AA714970, W74413, N93537, R98448, AI042461, AA516399, AA468581,
 AA311187, AA223944, AA218947, AA535537, T33266, AA587675, AA582946, AA463631,
- 45 AA232313, AA025677, H87647, H41246, AA857537, AA813080, AA600709, AA578079, AA534810, AA478301, AA181085, AA045309, H90532, H59071, AA348055, AA147286,

H43876, Z39687, AA729334, AA687231, AA224465, W93645, W42707, H28128, H24740, H21824, AA481499, AA025676, AA962094, AA493565, AA638668, AA050845, AA710561, AA266142, AA2122974, AA116742, W08178, AA086663, W08053, AA718467, AA611070, AA499697, AA435019, AA275978, AA432539, AA000715, W53320, W08834, AA271280.

- 5 AA499120, AA450612, AA145957, AA738668, AA116578, AA103887, AA080212, AA000140, W15672, AA500563, AA466501, AA815547, AA122463, AA250660, AA137789, AA048341, AA030888, W41246, AA614911, AA285443, AA254772, AA237427, AA034735, AA930798, AA466432, AA656426, AA672068, AA105792, AA727731, AA110731, AA445331, AA403873, AA276170, AA207749, AA120318, W48275, W48551, W17604.
- AA655834, AA498742, AA445423, AA445284, AA105743, AA273541, W34655, W13222, AA821463, AA674951, AA617191, AA606809, AA518871, AA265513, AA116717, AA109939, AA108635, AA063836, AA790851, AA623308, AA473063, AA734319, AA098100, AA009176, AA004000, AA273596, AA124101, AA221387, AI045428, AA996720, AI030004, H32511, AA751623, F15107, D35735, C63380, AA900476, AI013879, AI014091, AA685746, H35232, AA685207, AA754479, AA946050, AI030621, AA818593, C42349,
- 15 AA685746, H35232, AA685207, AA754479, AA946050, Al030621, AA818593, C42349, AA108294, C39933, AA955622, AA438632, AA848774, AA849328, C39540, AA952351, AI014069, C33475, AA894046, AI013403, AA697896, D33424, C23821, C69685, H35402, AA698615, AA891532, AI009720, AA998190, AI008147, AA955102, C40594, AA925224, AA924715, C40993, AA438416, AA697088, AA979976, AA899774.

- L01042, Z54865, Z50071, U12965, M77245, Z84469, X59711, L78442, L08472, U39442, U73458, J04096, AC003972, U01158, U05294, Z50735, Z81367, X99537, AC003986, AC004496, X91803, Z71347, U61955, AA001194, AA831000, H28333, AA907185, AA493142, N48262, AA227914, N69341, N48269, AA836225, AA401439, AA309347, AA887267, AA638668, AA789926, AA050845, AA030888, AA473063, A41393355.
- 30 AA672068, AA734319, AA403873, AA276170, AA184339, AA237427, AA120318, AA063836, W13222, AA518871, AA718467, AA445284, AA105743, AA221387, AA207749, AA189920, AA606809, AA000715, W41246, W17604, AA821463, AA656426, AA655834, AA617191, AA086663, AA098100, AA498742, AA466432, AA445331, AA254772, AA212974, AA175181, AA266142, W48275, AA674951, AA445423, AA265513, AA109939,
- 35 W34655, AA874294, AA162566, AA271280, AA116717, AA108635, W08178, AA004000, AA790851, AA727731, AA623308, AA499697, AA450612, AA273541, AA273596, AA153292, AA145957, AA124101, AA614911, W48551, W15672, AA930798, AA710561, AA285443, AA275978, AA122463, AA105792, AA034735, AA009176, W08834, AA738668, AA499120, AA466501, AA435019, AA048341, AA116742, W53320, W34970, AA103887,
- 40 AA080212, AA000140, W08053, AA855391, AA815547, AA611070, AA500563, AA432539, AA250660, AA137789, AA110731, AA116578, AI045428, AA996720, AI030004, H32511, AA751623, AI013879, D35735, C65022, C63380, AA841581, F15107, C48782, AA841736, AA900476, C90931, D35680, AA841976, AA841659, AI014091, C90589, AA685207, AI043591, AA801157, AA685746, AT000322, AA754415, AI035162, AA754479, H35232.

SEQ ID NO: 307

S51858, U22009, AF013273, M63489, AC003984, AF067609, Z72771, AL023534, S77094, X94357, AC002992, Y00762, AF016412, X02508, Y14081, U47924, AC002465, AA278473,

- 5 AA669484, AA233482, AA344552, AA082364, AA937305, F00220, AA344335, AA333224, H22822, W81677, R13215, AA491413, Z42799, AA906359, AA101483, R82656, R33858, AA183221, AA657048, AA038212, AA462517, AA544152, C88760, AA178691, R75435, AA989839, AA796850, AA815887, D64326, C64754, AA799599, D34505, AA850502, D72055, D73344, T00102, T02095, AA901359, C38841, R86355, T00999, AA728587, C53849, AA585995, C37871, D65352, D33998.
 10 AA585995, C37871, D65352, D33998.

SEQ ID NO: 308

- S51858, AF025464, AF024502, Z70310, U60205, M60873, AC002531, AF016447, U93162, AL023841, AB009498, AA937305, AA279145, AA669484, AA781806, AA992011, AA234362, AA224978, AA225019, AA278473, AA459901, AA437381, AA478049, R66346, AA436920, AA344552, F00220, AA344335, D82103, H93619, AA460384, T06072, R93147, AA524527, W39240, AA679163, AA991228, AA938240, AA044782, A1022397, A1041834, 20
 AA575865, W30863, D44701, H95004, AA280788, AA996103, AA814140, AA489052, AA508696, AA559009, AA262090, AA033520, AA724929, R53806, AA307914, N25127, AA351987, AA916757, N20582, AA034194, AA676465, AA280782, AA228658, C88781, AA038212, AA183221, AA265678, AA822645, AA645553, AA462517, AA123385, AA386732, AA161963, AA109891, C13575, D36631, T14807, AA819110, C46898.
- 25 AA141090, C90842, AA899333, AA875010, AA495436, AA699065, C42828, AA891889.

SEQ ID NO: 309

- AZ75895, Z69917, AC004768, M12922, Z39710, H09245, R39824, F03749, T52127, AA325912, AA493590, AA411065, H83531, H80456, AA747004, AA437325, AA583390, T07307, T50392, Z28508, T95864, AA315999, T95858, T64635, AA672225, AA738911, AI019267, AA066186, AA185213, AA072847, AA072651, AA024238, W64263, AA415475, D19329, AA072855, AA245717, AA036227, W66967, W99134, W61778, AA4732421, AA072823, AA44727, AA87218, W62965, AA00705, AA873231, AA672723, AA0767670
- 35 AA438233, AA244792, AA822118, W62965, AA000795, AA839391, AA467723, AA097649, AA616290, AA752374, AA893758, T14820, D41474, AA818727, T14914, AA899904.

- 40
 AF060181, AF012126, Y13472, AF035374, S53307, S53301, D63790, Z98949, AF039713, M30114, AF033029, U02512, D00863, AL024485, L13855, Y10259, M69019, M13655, M57505, U15304, AL021816, D89168, M11969, X03636, M57504, U02513, AA329832, A1028699, T48184, AA884702, AA863120, AA091936, R72495, AA488601, W38657, AA686120, AA091936, R72495, AA488601, W38657, AA686120, AA091936, A72495, AA4886101, W38657, AA686120, AA091936, R72495, AA4886101, W38657, AA686120, AA091936, R72495, AA4886101, W38657, AA686120, AA7866120, AA786120, AA786120,
- 45 H91730, AA681096, AA793734, AA981374, AA675674, AA690226, AA981061, AA710968, AA880265, AA437673, AA437687, AA591866, AA472881, AA088934, AA795731,

AA073408, AA792627, C42637, C92164, L47042.

SEQ ID NO: 311

5

AP000015, U58749, U40953, AC002533, X69121, AF043699, AC003016, U50542, U09985 AC002350, Z84488, AF047660, AC002066, M55913, D87000, Z74696, D12614, Z79997. AC004003, X67715, M16441, Z93393, Z15026, D10727, X01393, X02911, S44898, U52112. D00102, AP000049, Z81465, AF036382, L78833, Z68879, Z46792, AC004551, AI003834. AI017914, AA483199, AA328991, AA452055, AA704670, AA482705, AA088464, AA626101, N63395, AA447870, AA035627, N48929, AA873000, D45305, N51078, AA847320, R40789, N69574, AA062843, AA766857, H91645, N63780, N66935, T06566, AA361436, AA313016. R92628, N67652, AA984114, AA714632, AA847717, H75539, R96142, T83983, AA237418. AA119294, AA125550, AA137476, AA413638, AA619999, AA204281, AA691025.

AA823757, AA414319, AA268043, AA210338, AA537203, AA666619, AA536698, AI020243. W41084, AA619116, AA717327, AA816053, AA174774, AA615978, AA915439, AA117069. AA153256, AA270506, AA154670, AA863974, AA415736, AA168244, AA066545 AA940122, D77581, AA821456, AA289951, AA624442, AA900071, AA946064, AA275544, D33641, C36319, AA892894, D32930, C52688, AA817046, AA395150, AA899974. AA851527, AA950955, D34300, AA651466, D32420, AA859574, AA892571, AA945159.

AA956036, AA859484, AA957864, AI009162, AI008809, AI013512, AA957926, AI028892, AA958015, AI043936, AA818778, D23247, AA900825, AA945198, AA697456, AA998854, AA799466, AA891156, AA956815, AA957706, AA893278, AA697455, AA818901. AA800853, AA851789, AA957936, AI009753, AI010105, AI012418, AA893449, C52353. AI046079, C83343, C82487, AI010496, W06499, AA697451, AI030918, AI012013, AA944691, AI030612.

SEQ ID NO: 312

AF014890, AF014898, AF014888, X62996, AF014892, AF014891, AF014884, M10546. AF014889, AF014901, AF014882, J01415, V00662, X59268, AF014894, S75896, S75895. X93334, S73804, AF014895, D55239, D51981, D57451, D54971, AI028628, AA532797 D57566, AA508758, AA470370, D52491, F16554, F15674, F17184, F16407, AI015676, 35 F18264, AA879019, F18249, AA464752, AA197149, AA783018, AA192604, D53377. AA534145, C04537, C05625, F22582, F15897, AA983610, AI024380, AA428850, AA876525, AA725126, C05532, AA512996, F17169, AA181000, AA897022, AA492256, D56728, F15522 AA595503, D58015, AA889892, AA514885, C05652, AA400809, AA453608, AA566006. AA580161, AA401126, F15604, F17980, AA595757, AA758834, AI031660, F16474, D29370. F16548, F16570, F17230, F16436, F18029, AA176484, AA216167, F16448, AA194421, U78174, F21967, AA214075, AA564658, AA576110, AA582805, AA551520, AI026683. AA886497, F16452, F17705, F15947, F18756, F16090, F17920, AA464751, F16744, AA523492, F16080, F15668, AA224754, AA579806, AA877931, D54713, F15788, AA554414.

F16359, D29555, F22570, D56542, F16615, F15961, F15603, AA692320, AI035418.

30

SEO ID NO: 313

M92377, M12922, AC002550, T95864, T64635, H80456, T50392, T95858, T07307, AA948672, F10380, AA694319, AA833739, AA977526, AA455988, R44944, R43657, 5 AA909207, T53866, R41594, AA672225, AA140149, AA497636, AA059664, AA432664, T14022, AA395920, N960191, R64959, N96178, N96220, N96016, T21803, T04517, AI044980, AA859624, AA392283, Z18075, T00507, AI008263, AA605761, C31573, M80149, D27641, Z37608, AA605525, C19110, AA186306, L33601, H31391.

SEQ ID NO: 314

10

S74340, AP000043, U82672, AP000002, U09422, M85225, D90905, AB009475, AL021332, Y11780, U08812, X90939, U49939, L15633, U07562, Z94801, AA659728, AA883923, D59934, AA918493, R39993, R73900, D53031, AA059363, AA166749, R43798, T10593, AA166776, T10567, W21931, T79096, R18629, W52470, N92193, AA829137, AA262975, AA461317, R31825, AA237325, AA408229, R75227, AA408228, AA967595, AA087123, W10172, AA111364, AA060895, AA963816, AA944459, AT000281, AA946310, AA264476, AA263328, AA893257, AA818058, AA946183, AA752837, A1010886.

SEQ ID NO: 315

U91319, L27090, Z98598, M97514, L22987, L28176, L22988, L22989, X74671, L33769, AJ002236, M33862, X59370, L27105, AA909943, AI018164, AA876117, AA761118, AA885370, AA830743, AA811540, AA732383, Z19362, AA994568, F05898, R33142, AA815140, Z45678, AA393239, H70916, R42609, W74150, W46431, W74157, AA811026, H12391, C16126, AA291279, H70913, AA553046, AA277240, AA390010, AA289068, AA066355, AA259657, AA880335, AA063857, AA203797, C77689, AI050209, AI026596, C52662, D33733, C93027, C57696, H33415, AA696819, C70316, AA858626, AA859618, AA113580, C62833, AI009444, AI050106, AA520381, C23420, AA875045, AA955156, N37856.

35 SEO ID NO: 316

U56860, U00035, Z69251, AC003686, AC004774, AC002457, AC001527, L81869, Z82253, AL022101, AC002485, U39648, AC003085, Z74043, AL022104, X85105, Z70177, AC004227, AF002197, AC004478, Z71263, AC000378, Z82212, X67744, AA809784, AA412105,

- AA836191, AA827109, AA804427, AA814890, AA768944, AA354395, AA829438,
 AA828744, AA205333, AA782931, AA250965, AA251165, AA151555, AA256169,
 AA789094, T79588, AA426431, H79702, AA029448, R21432, X71647, AA512108,
 AA189682, AA739022, R04648, AA417407, AA851163, R03957, R05178, R03268, R03852,
 C25737, D33134, R03421, R03256, C34891, D37751, D72823, AA956678, A1007798, T39037,
 AA294340, AA898159, C61838, D69030, AA850706, D65552, C62086, AA851036, C52237.
- AA224340, AA898139, C61838, D69030, AA830100, D63332, C62080, AA631036, C3223 AA925983, C32833, AA294788, AI030007, AA998684, AI011286, AA800269, AI009727,

T21529, AA858451.

SEQ ID NO: 317

AC005270, X92100, X86090, AL009173, Z34288, X88851, U39676, AE000973, Z49348, AA319373, AA191069, T70737, AA084237, AA399386, AA793396, AA734139, AA049284, AA492788, AA717972, AA795229, AA176068, AA064579, AA497777, AA500252, Z26048, F19760, AA966157, D48474, D48185, A1043542, R04515, D70544, AA114331, AA720084, C94126, D34450, AA191793, C09440, C65405, AA851621, C65618, A1045939, C84167, D67435, D37078, D40007, Z17800, U44260, AA660209, C91194, AA908010.

SEQ ID NO: 318

15

5

U77706, U31961, L07835, L11172, AC003001, AC001047, AE000962, U32722, D63790, Z82976, Z95126, AA582177, AA779722, AA233016, AA228050, H27414, AA232702, H90472, C79289, C79397, AA175404, AA739332, AA185918, AA549313, AA175414, AA422545, AA240758, AA16836, AA221415, AA410095, AA237814, AA172709, AA168456, AA266103, AA277270, C87523, AI047796, AA177380, AA267624, AA266985, AA170289, AA178542, AA217473, W18297, AA637914, AA996627, AA454427, AI044624, AA022362, AA042785, AA042284, AA549973.

25 SEQ ID NO: 319

AC005191, AC000022, AC004161, U67949, D32002, U48251, X80030, T34938, AA348735, T11294, AA496625, H11830, F11832, AA037681, T65508, AA011609, H71333, H15581, A496503, C15755, D81192, D81591, AA234424, T83538, AA461155, AA025279, Z36730, D80564, AA234423, N26354, W00688, AA692746, U37159, C39409, C91297, AA799289, D68368, AI029040, Al007668, C08934, Al010541, AA850556, AA392473, H31325, D34571, AI043892, AA996460, AA946179.

35 SEQ ID NO: 320

AC004142, Z70750, AC004766, Z78416, Y13473, U80452, AF000299, U88173, AA702479, AA702790, AA825557, AI038962, AA505372, AI051720, AA505567, AA864908, AA505703, AA610492, AA505302, AI015179, AA704244, AA037682, AA664420, AA505301, AA147170,

- 40 AA814618, AA321331, Z40775, T35671, H15525, AA011610, AA633691, H11751, AI025182, H11079, T65428, AA705344, F09480, AA811013, AA091593, AA938978, AA089924, AA722822, W32680, AI050875, H01026, W67301, AA890360, AA678583, R49664, AA815086, C16979, AA507270, AA558990, N70810, W80778, AA883720, AA790780, AA275189, AA600642, AA265030, AA259672, AA855284, AA866847, AA792675, W57074, AA2600, NI000, W35240, AA2603, AA260
- 45 AA096992, W81949, W75269, AA789988, AA259316, AA790623, AI021000, W57110, AA990198, AA067249, AA726260, AA537135, AA798563, AA755019, AA030169,

AA116306, C23464, AI012480, C23465, AA201498, AA802376, C91292, AA246870, C90701, AA963602, AA950424, AA956932.

5 SEO ID NO: 321

AE000658, U85195, AB009521, Z70288, M12922, T52127, AA325912, T95858, T64635, T07307, H80456, T95864, T50392, AA833739, AA977526, AA948672, T53866, AA029491, F10380, AA132333, AA455988, R41594, R43657, AA132348, R44944, AA909207, 10 AA694319, D31584, AA672225, AI019267, AA738911, AA467723, AA066186, C19110, Z37608, AA186306, AA392283, AA605525, C70333.

SEQ ID NO: 322

15

Z83836, M59371, Z69917, AC004768, Z75895, Z39710, H09245, R39824, F03749, AA493590, AA747004, AA411065, H83531, AA315999, AA437325, Z28508, AA583390, AA426377, AA252549, N76310, H78530, AA768319, AA822118, W66967, W62965, AA616290, AA839391, D19329, AA036227, AA185213, AA072651, AA072847, AA024238, AA244792, AA671995, AA415475, AA438233, W64263, AA097649, AA245717, AA000795, AA475421, AA072855, W99134, W61778, AA184000, W33766, AA185206, C78177, AA798172. AA863961, W81788, W53793, W62573, AA230836, AA466643, C78205, AA822043. AA086975, AA990223, AA655533, AI049173, AA790279, W97047, AA980600, W29472, AA752374, D41474, AA899904, C26152, T14820, AA818727, T14914, AA893758, T22262, 25 AA817000, N65632, AA816371, Z29789, AA394995, AA816959, T46743, AA941188, AA950659, AA849737.

SEQ ID NO: 323

30

Y13472, AF012126, AF060181, AF035374, D63790, S53307, S53301, AL021713, Z98949, AF039713, M30114, D89168, U02512, M57504, AF060205, M69019, AF033029. D00863. U55369, M13655, AL021816, M57505, M11969, AL024485, Z82189, L13855, X03636, U02513, AA329832, T48184, AI028699, AA884702, AA091936, W38657, AA863120, 35 R72495, AA486001, H91730, AA681096, AA793734, AA981374, AA675674, AA690226. AA981061, AA880265, AA437687, AA472881, AA437673, AA591866, AA792627. AA088934, AA073408, AA795731, C42637, C62662, L47042, AA787536, D22851, D15739, AA532235, AI026532, T43691, H98444, R29968, C27630.

40

SEO ID NO: 324

AF060181, Y13472, AF012126, L28807, Z49809, Z98601, AF043695, X07891, AC001052, AC004445, AC004114, Y07564, AC004356, M22875, AC003945, AC001648. M22876. 45 X05643, Z69666, AF009615, M38643, D31712, U35852, M22874, Z48444, AC005198. AA993582, AA282776, AI051311, AA767826, D11944, AA860937, AA629081, AA872477,

C14749, AA872945, AA251581, AA863063, AA452155, AA505638, AA251580, AA283078, C14507, C14328, C14354, AA663837, AA034499, AA135989, AA115537, N79268, N71855, D80504, AA370561, AA746706, D81220, AA370562, AA843321, W37572, R93033, H97032, N38781, AA514700, N57805, N30488, N62550, H69847, T07543, W69578, H71919, N77224.

PCT/US98/14679

5 H44790, AA635156, AA704735, AA267676, AA161918, AA960263, AA798296, AI047555, AA254301, AA497406, AA497405, AA210440, AA051239, AA117254, AA137972, AA821741, AA851515, AA926013, AA950193, AA695692, C24325, AA394737, C93891, AA848449, C64092, AA943258, AA956886, AA851240, AA799762, AI007952, AA644744, AA882675, C61851, T36898, AA957795, AA818311, T38995, T36455, AA997643, AA945866, T37716, T36576, AA957887.
 10 T37716, T36576, AA957887.

SEQ ID NO: 325

AC004593, Z74023, U38804, U01157, AE000786, L23503, U40800, L15310, U01104, U01156,
 U10037, H54643, AA583408, T81855, AA284449, H64839, AA620679, AA30883, N41694,
 N88993, AA476931, R23668, AA464631, AA429911, Z42049, AA429731, AA758195,
 C18973, AA426370, AA882202, AA220159, W75183, AA444418, AA106025, AA966943,
 AA271060, AA415968, W81742, AA717639, W17519, AA396328, AA619027, AA260833,
 AA718691, AA553021, A037054, AA866815, A1036477, AA660619, Z97872, T43612,
 N99315, AA550217, AA892049, AA997375, AA901400, AA944313, D68989

SEQ ID NO: 326

AC004593, Z74023, U38804, U01157, AE000786, L23503, U40800, L15310, U01104, U01156, U10037, H54643, AA583408, T81855, AA284449, H64839, AA620679, AA308833, M41694, N88993, AA476931, R23668, AA464631, AA429911, Z42049, AA429731, AA758195, C18973, AA426370, AA882202, AA220159, W75183, AA444418, AA106025, AA966943, AA271060, AA415968, W81742, AA717639, W17519, AA396328, AA619027, AA260833, AA718691, AA553021, AI037054, AA866815, AI036477, AA660619, Z97872, D68989, N99315, AA550217, AA892049, AA901400, AA997375, T43612, AA944313.

35 SEQ ID NO: 327

AF060181, Y13472, AF012126, AF035374, S53307, D63790, S53301, Z98949, U15304, M57504, M69019, U02513, M30114, AF033029, U02512, M13655, AL024485, Y10259, D89168, L13855, M11969, M57505, AL021816, X03636, AA329832, T48184, AA486001, AA091936, R72495, AA863120, AA793734, AA675674, AA681096, AA690226, AA981374,

AA710968, AA880265, AA437673, AA437687, AA472881, AA088934, AA073408, C92164, L47042.

25

40

45

Y13472, AF012126, AF060181, L28807, Z49809, AF043695, X07891, AC001052, Z98601, M22874, AC004445, AC005198, AC004114, U35852, Z48444, AC001648, Y07564, AC003945, M22876, X05643, D31712, Z69666, AF009615, M22875, AC004356, M38643, AA282776, AA993582, AI051311, AA767826, AA860937, AA251581, D11944, AA629081, AA872477, C14749, AA872945, AA663837, AA863063, AA034499, AA452155, AA505638, N79268, AA251580, AA283078, C14507, C14328, C14354, AA115537, AA135989, N71855, D80504, D81220, AA746706, AA370561, AA370562, AA452383, N57805, N62550, AA843321, W37572, H97032, N30488, N38781, R93033, AA514700, AA091256, AA635156, AA704735, H69847, AI038776, T07543, T41024, N77224, AA267676, AA798296, AI047555, AA161918, AA960263, AA254301, AA210440, AA497405, AA497406, AA117254,

AA161918, AA960263, AA2594301, AA210440, AA497405, AA497406, AA117254, AA651239, AA137972, AA821741, AA926013, AA851515, AA950193, AA695692, C93891, AA394737, AA957795, C61851, AA799762, AA943258, AA417542, AA644744, AA957887, AA848449, AA818311, AA997643, AA956886, AA882675, C64092, A1007952, AA851240.

SEQ ID NO: 329

M90309, M96256, M90820, D82876, M95123, U62545, AE000387, U83435, AC003982, U28379, Z81081, AC004309, M29192, U64849, U23170, U58751, Z79999, AA662136, AA626635, AA507452, AA805078, Al039677, AA745880, AA722415, AA133371, D56262, AA514235, AA425201, AA946647, AA830458, AA083192, AA207200, AA316768, AA180767, N63329, AA878427, AA934449, AA133184, AA402087, AA937256, D52197, AA687770, AA365011, AA083191, AA731077, AA196815, AA211880, AA305565, AA099456

SEQ ID NO: 330

U06863, D89937, M91380, U06864, L10127, U86881, D80004, U60315, D90880, AE000337, 30 X64696, M32756, M26950, AF033384, U23172, AC002326, AL008732, M30023, AL090931 AA545793, Z17837, AA853392, AA853932, N86419, R57888, AA429966, AA044047, AA092160, AA346981, N85021, AA248133, AA368106, W22634, AA694482, AA770656, H86231, T78778, W03714, AA258169, AA565536, H56510, AA769400, A1035782, AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, AA929708, AA939398, W71206, W39990, W39917, AI006564, W35012, AA985693, AA967387, W71004, AA143948, AA117341, AA170363, AA681172, W45885, W3683, AA036185, W77037, AA037985, AA259405, AA423660, AA289830, W70655, W65892, AA763976, AA563018, AA049849, AA286069, AA764370, AA014882, AA543854, C82438, C83294, AA495069, AA752205, L38123, D35571, D39195

SEQ ID NO: 333

U06863, D89937, M91380, U06864, L10127, D80004, U86881, U60315, X64696, D90880, AE000337, AL008732, M30023, AC002326, AL009031, AF033384, M32756, M26950

AA545793, AA853932, AA853320, N86419, AA852349, Z17837, R57888, AA429966,

AA368106, AA694482, AA770656, H56510, H86231, AA769400, AA258169

AI035782, AA030804, AA033212, AA049640, AA734288, AA838966, AA734000, W71206, AA929708, AI006564, AA939398, AA985693, AA967387, W71004, AA143948, AA162315, AA562776, AA563168, AA874667, AA117341, AA855746, C82438, C83294, AA495069, D39195, L38123, D35571, KM252/T3.

SEQ ID NO.334

10

D89937, U06863, M91380, U06864, AE000337, D90880, X64696, AC002326, AL008732, AL009031, M32756, U23172, D89937, AA545793, Z17837, AA853320, AA852349, N86419, R57888, AA429966, AA044047, AA092160, AA346981, AA853932, N85021, AA248133, AA368106, W22634, AA694482, AA770656, H86231, T78778, W03714, AA565536, H56510, AA545793

SEQ ID NO.335

- Z68106, AC004770, Z75714, Z85994, AL021939, Z71260, U36840, Z82090, AJ224445, AE000348, D83479, U21323, Z68106, AA716497, H98974, AA703998, AA044900, AA044689, AA031932, AA491463, AA599783, AA032050, AA186359, AA173933, AA600033, H97601, W63570, AA627069, W72045, AA025046, AA548128, AA088246, W58303, AA669937, W52070, H97416, AI041635, W52215, H97549, AA137262, W46845, W92629, AA128494, AA026782, W76397, AA661793, W94840, N79437, W46494, AA595373, W78218, N23437, W94418, W46918, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105, W42793, W96120, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651, R95788, N67716, N58122, T47507, AI025353, AA888923, W96121, AA722567, AA788950, W74255, AA188212, R56693, AA987381, AA565505.
- 30 W51762, N70652, R87166, AA026781, T33491, W17326, AA501650, AA025047, R95744, AA903702, AA480682, R28503, AA664567, N73609, R39109, R07697, R87165, AA988438, N44927, AA666225, AA886647, AA599854, T62853, T90854, AA987862, AA853933, AA853321, R83373, C00827, AA716497.

35 SEQ ID NO.336

AF012072, Z34918, AC004016, AC004400, L06314, AC004476, U59229, U23179, AF025311, AF012759, U95072, D88752, AF012072, W28058, N42333, AA678083, AA632361, W87293, AA70080, AA570060, AA570466, AA664561, W01055, AA570473, AA678087

40 AA700969, AA580406, AA428666, AA604561, W01955, AA574373, AA678193, W28058.

SEO ID NO.337

45 AF012072, U04282, U93694, AJ229042, AF051934, AL010167, AL008970, AF005680, X56564, Z81472, Z48717, AF005697, AF014948, AC004414, AF005683, AF005681, U04280,

AF005674, Z83838, AF039057, Z74071, Z74072, AF007943, AF005679, AF005670, Z48432, AF005669, AF005673, AF005694, AF005675, AF005682, L12722, U62943, L05514, AF029791, L04132, Z99281, U41624, AC004016, AF005672, Z72831, AC005212, AC002465, U65590, Z75714, U29157, AC002541, U88173, AB008681, AE001040, AF005671, AF005678,

- 5 AF005684, AF005685, AC004238, AL021180, Z72518, U88166, AF012072, AA425182, N34551, AA457547, AA903329, AI017135, AA937078, H89366, N34541, AA490854, H99291, N75058, AA457747, D59286, D62357, H89553, D62145, AA526320, N66282, N29478, AA609043, AI014367, N92469, W79550, AA665666, R50684, N25822, C21162, AA468635, N44557, N95594, AA147928, AA491834, AA960937, AA528395, AA083916, AA777212, W26582, W60189, AA013234, AA018312, H66933, A1006093, AA751669, W87709, R26693
- 10 W25684, W69189, AA013334, AA918317, H06933, AI000693, AA705169, W88709, R42683, W69134, AA306914, AI017605, AA425182.

SEQ ID NO.338

M90820, M90309, M96256, M95123, D82876, U62545, AC003982, U64849, U23170, U97592, AC004099, U58751, M29192, M90820, D56262, AA662136, AA316768, AA180767, D52197, AA196815, AA083191, AA305565, AA099456, AA211880, AA425201, AA374550, D54751, AA904934, AA301380, H16000, AA304018, AA30177, AA661783, C03243, AA083192,
N88739, AA830488, AA662099, AA091762, AA910956, AA626635, AA358717, AA507452, T23842, A1039677, AA722415, AA805078, AA745880, AA133184, AA514235, AA133371, AA934449, AA207200, AA652387, AA946647, AA687770, AA365011, N63329, AA757083, AA709130, H42504, AA856607, AI015577, AA287349, H80862, AA701928, AA815104, N29511, W46860, AA929000, AA937256, T78553, F11745, R88938, H52017, AA456142, T87832, AA431044, AA189120, T28999, AA007693, AA215302, AA436121, AA446826, R52744, AA040668, R20592, R60482, H18710, Z45180, T95232, R79671, T33317, H43493, AA219658, AA430392, AA631802, AI040805, T09413, T33924, H05237, AA768012, D56262.

30 SEQ ID NO.339

M90309, M96256, M90820, D82876, M95123, U62545, AE000387, U83435, Z81081, U28379, AC004309, Z79999, M90309, AA662136, AA626635, AA507452, AA805078, AI039677, AA745880, AA722415, AA133371, AA514235, AA425201, AA946647, AA30458,

- 35 AA083192, AA207200, N63329, AA878427, AA934449, AA133184, AA402087, AA937256, AA687770, AA365011, AA731077, AA515865, AA910956, AA180767, W67861, AA301380, D56262, AA182893, AA330777, AA358517, AA661783, W67804, AA652387, AA316768, AA523222, AA541535, AA305565, D57347, AA662099, AA904934, H16000, AA211880, AA083191, AA196815, D52197, AA099456, AA091762, AA886161, AA876833, AA928813,
- 40 AA512845, AA374550, D54751, AA304018, AA809606, AA836660, T23842, C03243, AA709130, AI023221, AA287349, N29511, AI015577, H80862, AA701928, AA815104, W46860, AA856607, AA929000, W89194, AA446792, T61548, AA913564, AA828597, AA662136.

X59417, X61972, D10755, AF056191, Z72533, S58126, M55440, M63641, M22647, AC003026, L11235, D82813, Z68870, D82812, X59417, AA029397, AA837580, W23501, AA890064, AA488257, AA632149, AA703270, AA890484, W53005, AA716489, AA446816, W44361, AA316602, AA843688, W20013, W52807, W44618, AA526876, W39027, W49827, W60039, AA315539, W38864, W40517, AA583625, W17240, W67897, W03417, AA126319, AA772085, W32916, AA315426, W19376, W46657, AA860293, W31060, W94046, W37276, A1024374, W77914, AA523299, W24607, AA044357, W40204, AA505371, A1034269, AA448491, AA844258, A1041663, N50564, AA807830, R52324, W47241, N29205, W00352, H21413, A1014835, AA716549, AA861938, AA612828, T29583, AA045467, AA329485, AA661664, W94047, AA372064, T89588, AA044173, AA863108, AA488200, N93220,

0 AA661664, W94047, AA372064, T89588, AA044173, AA863108, AA488200, N93220, AA570625, AA612774, AA716138, T95448, AI052107, AA916452, AA861538, AI032881, AA722960, AA652222, AA946746, W53006, AA860602, N50621, H06545, AA973433, AA164391, AA301799, AI026047, AA843370, AA706945, AA229044, N50137, W44599, W05095, AA724169, AA989387, AA353184, AA916455, AA029397.

15

SEQ ID NO.341

X59417, X61972, D10755, AF056191, Z81009, Z73362, Z68870, AC003026, X59417,

0

AA837580, AA890484, AA703270, AA632149, AA843688, AA716489, AA890064, AI024374, AA523299, AA505371, AA448491, AI041663, AA772085, AI034269, N50564, AA807830, AA844258, AA860293, AI014835, AA0445467, AA861938, AA661664, AA612828, AA044173, AA863108, AA488200, AA570625, AA716138, AI052107, AA861538, AA722960, W94047, AA612774, AI032881, W53006, AA946746, AA843370, AA229044, AI026047, N50137, AA973433, W44599, AA716549, AA860602, AA916452, W77914, AA894692, AA989387, AA706945, AA724169, AA860981, AA693427, AA916455, AA652222, W49827, N67814, AA126319, AA026136, N89757, AA693799, AI001105, AA782177, AA035351, W60039, W67694, W47125, AI026764, N93152, H97527, AA757013, N91597, H21372, AA643395, W51997, AA630959, N93220, AA164392, AA128178, AA047319, N94909, W42460, W35352, N91371, AA903675, N99937, AA158100, W46622, N72079, AA029397, W45714, AA720990, AA83762, H06487, W72155, W37789, AA903194, AA872269, AA005388, R52084, T92259,

35

SEO ID NO.342

AA837580.

Z68106, Z75714, Z85994, U21323, U36840, AE000348, AF045646, Z68106, AA491463, AA599783, AA031932, AA600033, AA703998, AA04490, AA669937, AA548128, H98974, 40 AA173933, A1041635, H97549, AA627069, AA186359, AA716497, H97601, AA137262, W72045, AA026782, W46845, AA088246, AA661793, W94840, N79437, W46494, AA595373, W78218, N23437, W92629, W94418, N34381, W46790, AA583657, AA599353, AA961557, W58194, N33105, AA044689, W42793, W96120, H97416, H50538, W52141, W81572, AA593009, AA983246, H97340, AA147651, N67716, T47507, AI025353, NS8122, W96121, AA888923, AA032050, AA722567, AA788950, W74255, AA565505, AA987381, W51762, N70652, R87166, T33491, AA903702, AA480682, W46918, AA025047, R95744.

W58303, AA988438, AA664567, N73609, AA599854, R39109, AA666225, AA886647, AA853933, AA853321, W76397, T90854, R56693, AA987862, AA599400, T62853, C00827, R83373, N94338, Z38867, W52215, T54372, N29399, W63570, AA025046, H14477, AA719902, N68056, AA022992, R96871, R56849, AA491463.

SEQ ID NO.350

5

AE000046, AE000035, U35013, AE000036, AE000004, AC003080, AP000034, U09871, Z70691, Z54140, U26310, AF029304, U93196, Z75746, Z75893, AE000054, U49830, AC003676, AC003043, AL021469, AF064860, Z36753, AF043105, M34482, AE000002, U63312, AF016414, AB010068, AF036444, AE001117, X82684, Z66497, U97003, L08380, AL008971, U80028, U10414, M81689, Z11115, L09750, AE000550, AC002456, Z68120, Z66514, U97190, AC004644, Z54236, AC002341, AB015477, M29154, U40423, U41748, M81688, X56851, AB008264, AL021480, AC000076, Z37964, U10402, Z48007, AA527268, AA780210, AA431793, N28891, W74607, AA004205, N25768, AA643184, AA630321, AA216596, AA854206, AI038928, W45570, AA811726, AA001737, AI027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA114952, AA490320, W94384, AA424324, H49322, W68201, AA678487, AA214609, W04711. AA486288, AA165561, N73273, W02793, N67842, AA864358, AI034146, W30934, AA953621, W15581, W68202, H49323, AA693353, AA648400, AA971954, H97860, AA205308, H44141, AA766793, N20849, AA804853, AA485269, AI004353, AA433927, N62700, AA825778, AA114829, W31657, AA216543, AA007422, H10401, AA552090, AA579359, T97120, R82009, H01442, H69533, AA025477, AA779558, AA318373. AA430583, D78892, AA702752, W67753, R22948, T35994, AA329745, AA774128, T97005, R82061, R81522, AA996354, AA775160, H48804, R34243, Z28536, W90371, H44062, 25 AA025396, Z19475, H48810, AA513115, R62712, AA287628, C02732, AA777768, AA628646, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA560406, AA822900, AA079914, AA561771, AA254405, AA097088, AA822893, AA444663, AA200448, AA623299, AA863792, AA183321, D18314, AA472424, AA396152, AA960524, AA790566, AA560556, AA116991, AA690917, AA690993, AA170629, AA270487, AA688806, W36441, W71565, AA756480, AA690916, AA288151, AA414642, AA718602, AA162299, AA538093, AA619931, AA718699, AA268163, AA980553, AA545942, AA624507, AA855805, AA849531, AA848917, AA957315, AI009528, C06826, D39911, AA605573, C32716, D22377, Z18210, C23790, AA899962, AA802377, AA438451, 35 C84183, C90994, C92834, C93176, C89903, AA051845, T00553, AA943491, AA945230, AA946005, AA900113, AA161699, AI012441, C62969, W63171, AI010024, C25562, AA942692, AA997400, AA676066, AA850803, AA996844, AI044720, W06489, AI045785, AA964776, C36068, C54452, C54804, C94217, AA440498, H33868, AA850398, AA890788. AA990991, N55612, C90271, AA898115, D73182, AA202444, AA964855, AA712502,

SEQ ID NO.351

45

AP000034, X63673, AC003669, AP000017, AL022224, U26310, AA527268, N28891,

40 AA925965, AA550648, AA800209, T02433, AA925071, AA842873, AA957108. AA996923.

AI037825, W63192, AI030173, AA924397, AA997195, N96377.

AA780210, AA431793, W74607, AA004205, AA643184, N25768, AA214609, AA811726, AA630321, AA216596, AA854206, AA971954, AI038928, AA535623, AA114952, H49322, W45570, N30763, AA001737, AI027706, AA603729, W68201, W94384, H44141, AA610141, AA216543. AA148861, W90372, W31657, AA490320, AA025477, W30934, AA424374.

- 5 T97120, W92013, AA486288, H97575, W04711, AA678487, W02793, AA864358, AA953621, AA165561, Al034146, N73273, D78892, N67842, AA433927, AA648400, AA693353, AA825778, AA205308, AA804853, T35994, R82009, Al004353, AA485269, AA329745, AA766793, H49323, W15581, AA114829, W68202, H97860, N20849, AA579359, AA552090, AA007422, AA318373, AA430583, W67753, AA775160, AA702752, H10401, H01442, W90371, AA779558, R22948, Z19475, H69533, AA996354, R82061, AA025396, H44062, C02732, R34243, H48810, R62712, R81522, AA774128, Z28536, N62700, H48804, T97005,
- C02732, R34243, H48810, R62712, R81522, AA774128, Z28536, N62700, H48804, T97005, AA007407, AA287628, AA628646, AA777768, AA466843, AA608178, AA200267, AA175464, AA611918, AA396402, AA560406, AA097088, AA822900, AA254405, AA561771, AA079914, AA472424, AA444663, AA855805, W71565, AA268163, AA623299, AA18602, AA18602, AA56675, AA46777, AA26787, AA268163, AA623299, AA18602, AA36675, AA6675, AA66777, AA26787, AA66787, AA6678, AA6678, AA6678, AA6678, AA6678, AA6678, AA6678, AA6678
- 15 AA162299, AA718602, AA718699, AA560556, AA545942, AA624507, AA688806, AA270487, AA849531, AA848917, AA957315, AI009528, D39911, D22377, AA712502, W06489.

20 SEQ ID NO.354

- AE000046, AP000034, AE000004, AC003080, U35013, AE000035, AE000036, Z70691, U09871, U26310, Z75746, Z75893, U93196, AE000002, X87102, U49830, Z68751, AB005234, AC003676, AF043105, Z36753, AE000054, AF064860, AL021469, M34482, AC004644, 5 U40423, AE000550, AL008971, AC004564, AC002341, AB010068, Z37964, M81689, U97003, Z68120, Z48007, AB008264, AC002066, AB015477, AF016414, U10402, L09750, U80028, U00040, U41748, AL021480, AE01117, Z11115, X82684, Z66497, AF036444, U10414, X56851, AB012248, M29154, M81688, U97190, Z54236, AA527268, AA780210, AA431793, W74607, AA004205, AA643184, N25768, AA630321, AA854206, AA216596, 0 N28891, A1038928, W45570, AA811726, AA001737, Al027706, N30763, AA603729, W90372, AA610141, W92013, AA535623, AA148861, H97575, AA490320, AA424324, W94384, AA678487, W04711, H49322, AA486288, AA165561, W68201, W02793, N73273, N67842, AA864358, AA214609, AI034146, AA114952, AA953621, W68202, W15581, W30934, H49323, AA693353, AA648400, H97860, AA205308, AA766793, N20849,
- 35 AA804853, H44141, AA485269, AI004353, AA433927, N62700, AA971954, AA825778, AA114829, AA007422, H10401, AA552090, AA579359, H01442, R82009, W31657, H69533, AA216543, AA779558, AA318373, AA430583, AA702752, W67753, T97120, R22948, AA329745, AA774128, T97005, AA025477, R82061, R81522, AA996354, AA775160, H48804, D78892, R34243, T35994, Z28536, AA025396, H44062, H48810, AA513115,
- 40 AA287628, W90371, C02732, AA777768, Z19475, AA628646, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA097088, AA561771, AA822893, AA623299, AA444663, AA164111, AA200448, AA960524, AA396152, AA863792, D18314, AA790566, AA183321, AA560556, AA116991, AA472424, AA162299, AA619931, AA538093, AA718602,
- 45 AA980553, AA545942, AA624507, AA170629, AA688806, AA690917, AA690993, AA756480, W36441, AA270487, AA855805, W71565, AA268163, AA414642, AA690916,

AA718699, AA288151, AA849531, AA848917, AA957315, AI009528, C32716, C23790, AA605573, Z18210, D22377, D39911, AA899962, AA945230, C92834, C93176, C90994, AA698574, AA438451, C89903, AA943491, C84183, AA051845.

SEQ ID NO.352

5

M60558, AB006706, AP000021, D90716, AC005142, D87872, AE000181, W31813, W03446, AA318031, AA011499, H69988, AA329851, AA206741, AA045969, AA330339, AA148860, H48619, H48612, AA045835, AA348162, AA336381, AA337762, AA134434, AA917730, D52988, C17881, AA094788, AA489309, AA354856, Z19998, D56210, AA527916, AA011500, AA182437, AA320171, T53273, AA155839, H22733, AA809519, H44710, AA085882, AA358978, AA366689, AA188322, W45747, W97332, AA896228, AA789939, AA727854, AA096622, AA799210, AA166173, AA881031, AA726992, W07991, AA122715, AA117586, AA472537, AA388943, AA691105, AA432531, AA667224, AA500919, AA667205, AA562830, AA894335, Z81222, X93228, AA676087, AA944617, AA202573, C93776, AA583103, AA965140, AA951463, C65935, AA191869, AA842460, C08849, M89450, D73949, D74916, D75318, T01841, N21886, Z81288, AA451560, N69725, AI035168, M75876, AA651575, AA451561, T01140.

SEQ ID NO.359

AA767554, W91985, AA430583, AA740770, W91964, AA768675, AA433927, N68306, AA765872, AA004288, AA113840, AA705271, R62689, R36350, AA085427, AA307902, H00486, AA356897, W37253, AA313689, AA001622, AA054406, AA305641, N70479, AA306222, AA345397, T78803, AA325775, AA143762, T72106, AA076252, T55643, AA092407, AA192462, AA177031, AA679532, H13332, H17712, H16930, AA305815, AA004369, AA015827, AA705484, F11875, AA811088, AA001908, AA057226, AA790191, AA105116, AA790153, A1006318, AA472674, A1046894, AA983116, AA414094, AA589062, AA619440, AA238985, AA939578, AA672120, AA152861, AA547630, AA027542, A1021034, AA139951, D76727, AA501231, AA869414, W09603, AA687033, AA686313, AA736059,

AF027390, M55673, U28686, U70857, U91322, AC004525, U67212, AF067216, U95982, AF067611, Z73905, U13070, AA002081, AA113127, AA831044, AA002245, AA805579.

C93720, AA990781, AA686756, AA820697, AA140709, AA538976, AA263759, C91205, H74821, AA897979, AA660309, C93846, T20905, C93938, D27073, Z37604, AA926472, C94646, AA660648, AA952542, X73736, AA470322, D66007, C54318.

SEQ ID NO.353

40

AE000036, AC003080, U35013, AE000004, AE000035, AE000046, AP000034, Z70691, U09871, U26310, Z75746, U93196, Z75893, M34482, AE000002, AL021469, Z36753, AF043105, Y10196, AC003676, Z75529, AF064860, M12582, D10685, AE000054, U49830, X54116, X82684, Z84814, AB010068, U10414, U97003, M81688, M81689, Z54236, Z48007.

L09750, M86526, Z66514, U10402, AF016414, U97190, Z68120, AE000550, AL008971, M29154, X56851, U40423, D86251, Z83233, U41748, U80028, AC004644, AC002341, AL021480, AC000076, AF036444, Z66497, Z11115, AB008264, AE001117, Z37964, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321, AA884206.

- 5 AA643184, AA216596, AI038928, W45570, AA811726, AA001737, AI027706, N30763, W90372, AA603729, N28891, AA610141, W92013, AA148861, H97575, AA535623, AA490320, W94384, W68201, W04711, H49322, AA424324, AA486288, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA214609, W30934, AA953621, AI034146, W68202, W15581, AA693353, H49323, AA205308, AA648400, H97860, H44141, N20849
- 10 AA433927, AA766793, AA485269, AI004353, AA804853, AA971954, AA825778, N62700, AA114829, AA114952, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533, AA702752, AA318373, AA430583, AA779558, W67753, R22948, AA329745, AA774128, T97005, R82061, R81522, AA996354, AA775160, W31657, H48804, AA216543, R34243, AA025477, Z28536, H48810, AA513115, H44062, T97120, AA025396, AA287628, C02732, AA777768, AA628646, D78892, T35994, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA561771, AA822900, AA200448, AA623299, AA444663, AA254405, AA097088, AA560556, D18314, AA183321, AA396152, AA863792, AA472424, AA960524, AA116991.
- AA790566, AA624507, AA690917, AA690993, AA170629, AA688806, AA980553, 20 AA855805, W36441, W71565, AA268163, AA270487, AA690916, AA414642, AA718602, AA162299, AA288151, AA538093, AA756480, AA619931, AA718699, AA545942, AA849531, AA848917, AA957315, AI009528, D22377, AA605573, C23790, D39911, Z18210, C32716, C84183, C90994, AA051845, AA438451, C92834, AA943491, AA899962, C93176, AA945230. C89903.

SEQ ID NO.355

- AE000035, U35013, AE000004, AC003080, AE000046, AP000034, AE000036, Z70691, U09871, Z75893, Z75746, U93196, AL021469, AL009029, AC003676, U49830, AF064860, AC003043, Y10196, AE000054, AE000002, M34482, Z36753, AC002287, AF043105, Z68751, M81689, U80028, U41748, M81688, AC000076, AE001117, AB008264, Z11115, AF036444, Z37964, X82684, Z66497, U40423, AC004135, AE000550, U97003, Z98753, Z66514, U10402, AC004644, Z68120, AL008991, AC002341, AF016414, Z54236, U80843, L097504, AL021480, AC014144, AC002066, U97190, Z48007, AC003998, M29154, X56851, AA527268, AA780210, AA431793, W74607, AA004205, N25768, AA630321, AA643184, AA854206, AA216596, AI038928, W45570, AA811726, AA001737, N28891, AI027706, N30763, W90372, AA6003729, AA610141, AA535623, W92013, AA148861, H97575, AA490320, W94384,
- AA424324, AA678487, W68201, W04711, H49322, AA486288, N73273, W02793, AA165561,

 40 AA214609, N67842, AA864358, W30934, AI034146, AA953621, W68202, W15581,

 AA693353, H49323, AA205308, AA648400, H97860, AA114952, AA433927, H44141,

 N20849, AA766793, AA485269, AA971954, AI004353, AA804853, AA825778, N62700,

 AA114829, AA007422, AA552090, H10401, AA579359, R82009, H01442, H69533,

 AA318373, AA430583, AA779558, AA702752, AA329745, W67753, W31657, R22948.
- 45 AA774128, AA216543, AA996354, T97005, R82061, R81522, AA025477, AA775160, T97120, H48804, R34243, Z28536, AA025396, H48810, AA513115, H44062, D78892,

T35994, AA287628, C02732, AA777768, AA628646, W90371, Z19475, R58722, AA175464. AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA822900, AA254405, AA097088, AA561771, AA200448, AA183321, AA960524. AA396152, D18314, AA472424, AA116991, AA560556, AA790566, AA170629, AA162299.

- 5 AA270487, AA855805, AA414642, W71565, AA268163, AA690916, AA444811, AA718699, AA718602, AA980553, AA688806, AA545942, AA619931, AA624507, AA756480. AA690917, AA690993, AA183584, AA277326, AA286405, AA863529, AA880395. AA983023, AA048938, AA759545, W36441, AA208995, AA274576, AA623299, AA798564. AA547224, AA168386, AA198582, AA444663, AA106584, AA958885, AA840456.
- 10 AA546863, AA896177, AA162089, AA245968, AA416281, AA474849, AA155555. AA759392, AA849531, AA848917, AA957315, AI009528, AA605573, C23790, C32716 C90994, AA899962, AA943491, C84183, C89903, AA051845, C92834, C93176, AA945230, AA957108, W63192, AA925965, C94217, C54452, C54804, W63171, D39911, AA996923. AA924397, AA900113, AA161607, AI012441, AI045785, AA942692, D73182, C36068 15 W06489, AA161699, AA550648, N96377, D22377, AA712502, AA898115, AA842873.
- C25562, AA997400, AA202444, T02433.

SEO ID NO.356

AF051882, AF037335, AL020992, M99416, X14520, D87664, AC002531, X53815, AE000006. AC000077, M76611, D00814, L23176, AL021768, AC004457, X03674, AF068865, L02537, AL010259, X90947, AA642981, AA458937, AA236101, AA889703, T57200, AA653968. W49620, AA593002, AA725435, AA027201, AA084808, AA903402, T55953, AA235819. 25 AA084809, H62064, AA027200, W48794, H61158, AA399478, AA293409, AA676879. AA121077, H45963, AA459151, AA454941, F12881, T75179, AA151754, H17823, T90533. R69560, H03207, AA854346, AA083102, AA433953, AA453877, AA453793, F02019. D52307, AA292162, AA984316, H61258, AA812708, W92032, AA600088, T96124 AA127633, AA845619, H61254, AI023077, W31457, AA452311, N59208, N47490. AA292062, N24598, R42888, AA843088, AA594908, AA977276, N53479, Z38999, T32381.

W92031, AA446638, T03367, D55029, AA761261, AA856358, AA929411, AA509752, AA003370, AA637345, AA718711, AA212242, AA184206, AA606789, W11129, AA052492, AA089155, AA656802, AA867237, AA277010, W70784, AA277035, W53759, AA964553. AA963531, C22771, AA978729, T24128.

35

SEO ID NO.357

- AF051882, AF037335, AL021768, X14520, X53815, X03674, L02537, AC004457, AL010259 40 D00814, M76611, M99416, AC000077, D87664, AA236101, AA642981, AA084808, T55953. W48794, H62064, AA458937, T57200, AA027200, AA676879, AA653968, AA889703. AA121077, W49620, AA593002, H45963, AA725435, AA459151, AA027201, AA903402 H61158, AA235819, AA084809, T75179, F12881, AA293409, AA151754, D52307. AA127633, F02019, N47490, AA452311, AA761261, AA977276, W31457, AA843088. 45 H03207, D55029, N24598, AA594908, T32381, AA812708, N53479, AA446638, W92031,
- Z38999, AA854346, T03367, N59208, AA433953, AA453877, AA083102, AA453793.

AA845619, H61258, H61254, AA984316, AA292062, T96124, AI023077, AA600088, W92032, AA292162, AA856358, AA929411, AA509752, AA637345, AA003370, AA718711, AA212242, W11129, AA089155, AA052492, AA277010, AA184206, W70784, AA103584, AA656802, AA277035, AA644832, AA117871, AA832587, AA727479, AA03900.

- 5 AA049014, AA461759, AA009086, AA821436, W08251, W67029, AA237501, AA990551, AA615815, AA466218, AA968230, AA895501, W35974, AA080240, AA444348, AA119315, AA562230, AA615358, AA672796, AA855999, AA032887, AA030783, AA727629, AA562528, AA560856, AA105077, AA221346, D21560, AI021598, AA221474, C76042, AA399724, AA266701, C80733, W97848, AA869353, AA856003, AA562930, AA408977,
- AA072921, AA986604, AA964553, T24128, AA978729, C22771, AA963531, AA618677, C70539, AA882818, M89085, C19540.

SEQ ID NO.358

15

AL020992, AC004457, X53815, D87664, M99416, AC000077, X03674, X14520, L23176, M76611, L02537, AL010259, X90947, D00814, AF068865, D84102, AE000006, AL021768, AA642981, AA458937, AA889703, T57200, AA653968, W49620, AA593002, AA725435, AA027201, AA903402, T55953, AA235819, AA084809, H62064, H61158, AA027200,

- 20 AA084808, AA399478, AA293409, AA236101, AA676879, AA454941, W48794, T90533, H17823, R42888, R69560, AA083102, AA984316, AA446638, AA929411, AA509752, AA718711, AA637345, AA212242, AA856358, AA184206, AA606789, AA052492, AA277010, AA277035, W53759, AA867237, AA656802, W70784, AA869353, AA072921, AA107134, AA080240, D21560, W67029, AA049014, W35974, AA266701, AA560856,
- 25 AI021598, AA968230, AA832587, AA117871, AA895501, AA615815, AA644832, AA221474, AA032887, AA681567, AA030783, AA221346, AA444348, AA964553, AA963531, C22771, AA786747, AA882818, AA618677, C70539, M89085.
- 30 SEQ ID NO.414

SEQ ID NO.415

35 AA465221, AA761570, N46857, AA962609, AA815408, AA916501, AA766065, AA777308, H71811, N40451, F04649, N48489, Z40509, R81713, R10095, W56471, R81712, R69729, AI026098, AA465576, AA907934, Searching......done, No hit found..., AA956540, AA508944, D49223, AA785673.

40

SEQ ID NO.425

U65403, Z80216, AE000085, AJ001073, M22382, U65012, U68562, U18796, M34664, AF055066, AB012246, J03526, AE001119, X53585, U39678, X76381, X54793, M22383, U67571, AC002332, AA693933, AA721028, AA931296, R17072, AA677155, AA256862, AA639733, AA330429, AA329760, AA329619, AA857474, AA315609, N51133, T73002.

T50017, N28647, AA630706, N48489, W56471, R88588, AA054158, AA465576, N40395, AA733082, W81268, H64434, AA497682, AI006249, AI006553, AA793856, AA080715, U83072, T38855, AA680838, C34525, AA585543, AA433185, C36942, D68814, C35667, C82456, C07307, T01513, C67256, C83312, C38834, C63938, C39559, C36768.

SEQ ID NO.426

5

AL022717, AL021811, Al229043, AE000663, M14954, AF015262, U64875, AL008721, 0 U67598, AC002038, L32025, AC004260, AF005273, AA465221, W56471, N48489, AA761570, N46857, AA962609, AA815408, AA916501, H71811, AA777308, AA766065, N40451, F04649, Z40509, R81713, R10095, AA465576, R81712, R69729, Al026098, AA640995, AA887050, AA428757, AA827684, R26595, AA425850, N51765, H61767, AA634168, AA772970, AA913803, AI000803, AA683016, AA131534, AA326555, AA360932, AA657785, AA808668, M79127, AA184065, AA142531, AA118014, AA266514, AA789837, AA793335, AA450792, AA816226, AA475628, AA571566, AA124474, AA980923, W87182, AA881077, AA796110, AA183820, AA546029, AA387073, A1047064, Al006095, AA856530, AA545027, AA212706, AA562843, AA238214, AA200973, AA155378, W57254, W10715, AA467376, AA415438, AA462041, AA154951, AA014633, AA549692, AA925969, C67346, AA943103, C19196, C63639, M89370, D69496, C44629, C66412, AA964139, C73805, C71359, AA508944, AA801919, D27410, AA799424, F19870, D39451, D70177, D70637, C49979, N97760, AA875677.

SEQ ID NO.427

Z84480, AC004022, AL022097, AP000040, AC005192, AP000049, AL022162, AC003103, AC000120, Z73358, AC004672, Z84486, AL021328, AC003982, AC002449, AC000114, DA002453, AC003100, Z97987, Z84572, AC004583, AC004016, AC004025, AL020997, AC002331, AC004457, Z81369, U66061, AF029308, AL023280, AC004021, J02758, X13368, M14642, AC005217, AC004659, X69907, U82207, X78901, AL022170, Z82206, AC003085, AC004777, AC003958, AL021368, AF015723, AF020533, AC003064, U84404, AJ229042, AC000118, AL023495, X55448, AC002461, K01100, AC005191, AC004099, L44140, AC004001, AC002538, AC000606, Z97206, U91325, Z76735, U85195, AC004644, D14458, U89338, AF052440, U52389, U52392, U52403, U52413, U52419, U52422, AC003662, AE000658, AF045555, AC004259, X03700, X15062, U21056, U17066, U17067, U21055, L06480, U54798, AC004650, AF052437, Z98866, AF052438, AF052439, AF052444, AC000119, AF052445, AF052446, AC002463, U16853, Z75890, AA468564, H95789, AA14358, D13206, B77210, AA556970, M4731, T03700, AA565700, W8432, H99240

- AA114285, R13106, R97714, AA526979, D44781, T03700, AA565720, W86423, H89240,
 AA883940, AA662792, H89241, N92085, AA894448, T97074, H84885, R70468, AA024980,
 AA644290, AA046291, AA555286, AA021624, AA429437, AA232884, AA232814,
 AA824487, T85108, T86598, N59886, W39204, AA983814, T77523, AA191084, AA729894,
 N32666, T00645, AA513733, AA808122, R77513, AA628885, AA861696, R70016, N29731,
 AA011693, AA564509, AA768393, AA652996, AA034946, W02335, AA250734, AA775632.
- 45 AA011693, AA564509, AA768393, AA652996, AA034946, W02335, AA250734, AA775632, R92002, AA877400, R27392, N75988, AA580437, AI034439, AA454158, AA483165,

- AA487178, H39064, N34333, AA528493, AA644333, AA946594, AA535808, AA579568, AA487237, A1052491, W56706, N20836, AA970907, T28195, H98966, AA702751, R42384, AA707033, AA059119, AA781354, H96596, A1042594, R25619, AA910650, AA577719, N89742, AA025543, R36643, AA844004, AA160328, AA677260, AA568316, AA995622,
- 5 AA410187, AA477759, R42385, AA402512, AA172841, AA051594, AA671405, AA874518, D18938, AA516885, AA184252, AA673371, AA863812, AA521783, AA139062, AA881322, AA940092, AA116840, AA624257, AA684270, W81853, AA265929, AA068002, AA518171, AA795164, AA607854, W58777, AA915735, AA647218, AA474510, AA544194, AA068865, AA920031, AI047267, AA624337, W10596, C88483, R75374, AA990134, C76732, C87167,
- 10 AA839745, AA266035, AA711617, AA734421, AA771132, W64885, AA023551, AA142663, AA763672, AA049838, AA105882, AA537298, AA655975, AA739383, C80502, AA049860, AA144324, W36027, AA244515, AA474770, AA272905, AA145225, AA546326, AA616328, AA155394, W97483, AA184030, AA596627, AA038973, AA189403, AA562135, C77306, AA492720, AA124557, AA793960, AA797524, AA123777, AA245198, AA560849,
- 15 AA710704, AA177451, AA210094, AA763466, AA824021, AA871898, AI048396, AA270414, AA511147, AA562372, AA798102, AA986708, AI005940, AA220647, AA118264, AI020673, AA561337, C94869, AI009414, AI013223, AI012125, AA943390, AA944321, AA942703, AA899245, AI013420, AA901332, AA893971, AI011398, AA943299, AA901199, AI029767, AI045608, AA945726, C94140, AA942809, AA963781, AA849113, AA945912, C84887, AI045608, AS98245, AI045618, AA945726, C94140, AA942809, AA963781, AA860057, C91087, AA786257, AI013512, N97924, C94355, C22923, C24350, C94364, C91272, C92370, C23641, AA955618, AI026572, T09923, C89665, D43589, C94014, AI029028, AI031009, AA899734, AA202852.
- C92314, AA891494, AA894318, C92964, AI031055, H34256, AA946253, C29337, C31762,
 AA900825, AA925250, AA964227, AI010870, AI045220, H35668, AA818136, AA875122,
 AA540046, C88358, AA612557, AA900141, AA926409, AA998321, AI008211, AI044633,
 AA818611, C36818, C92593, AA957493, AI045062, C25711, C83829, AA848939, AA851997.

AA819535, AA892825, D72816, AA859452, AA858662, AA955262, AA550431, C89830,

30 SEQ ID NO.428

- AL022097, AF003530, AC000113, AC001051, AC003675, Z85995, Z84816, AC002056, AC004074, Z98255, AC002511, Z84720, AC004384, AC000055, AC004129, AL022170, AC004587, AC002091, AF039718, AC003005, Z81457, AL022393, Z99497, AC004415, AL009051, AC000116, AC004076, Z69943, AC005144, AC003091, AI229041, AF020802, Z82200, AC002523, AC002083, U11682, AC002081, Z95559, AL021786, AC005176, AC004225, AC004741, AC004385, AC003925, AC002498, AC002498, AC004536, AC002526, AC002312, Z74039, U42835, AC002479, U14181, AC002385, U22084, U00047, Z72004, AC002295, Z82201, Z84718, AC004749, AL021069, AC002065, AC005271, AC004654,
- 40 Z68871, AL009172, AL008715, AF035396, AC002463, Z92543, AC004615, AC004109, AL023579, AC002564, AC004746, AC004130, AC005166, AC002429, AC003677, U73649, AL021068, AC003106, AP000023, Z72001, AC002087, AC004094, U82828, AC003099, AC005160, AC004636, AC001642, N27134, AA425698, N78781, AA535734, R69270, AA743683, AA302706, H51692, AA573163, H48723, AA004673, H93293, AA359069, T6184, AA38430, AA402164, AA837691, R08674, AA403718, AA503278, F07773
- 45 T86184, AA358430, AA492164, AA837691, R08674, AA493718, AA503278, F07773, AA872448, N85051, AA682235, AA358429, D44828, T16582, AA338723, W87336, T54615,

AA812982, AA492182, AA346163, W03066, AA089488, AA601206, AA133956, AA234148. AA622134, AA865308, R55836, N63427, AA776728, R93932, H13401, AA907797, AA292642, N63089, AA151141, AA150051, AA305343, AI022912, AA206427, AA521004, AA481509, AA991835, AA458461, AA709140, N67721, AA115527, AA167530, H68770,

- 5 AA972921, AA976214, T16929, AA252624, AA325906, R96323, AA447247, H71679, AA701497, AA975970, H81693, AA100828, AA131828, AA235846, AA256264, AA401767, AA521047, AA587555, AA846049, AA121425, AI042266, AA227112, AI027598, AA103613, AA210279, AA210303, AA518247, AA555732, AA671124, AA763122, AA690026, AA137440, AA606964, AA242059, AA637947, AA389264, AA387721, AA153119,
- 10 AA475777, W63923, AA693296, AA869042, AA871426, AA271740, AA184039, AA638053... AA550163, AA023866, AA849427, T18217, Z37707, T76862, AA851236, AA925440, AA892794, AA926180, T42444, AF020597, Al013566, N21767, N97219, T22536, Al007733, AA698306, AI008253, AI011516, AA550634, AI030056, AA141148, C84796, N96845, H76196, C22922, C70405, R86782, AA191824, C66333, C67098.

SEO ID NO.429

L12445, Z35659, U32751, U23523, M67991, U65655, AE000775, D85857, Z68116, Z68115, Z48334, U53501, AA256839, H85292, AA852539, AA009809, W90074, H58434, AA635799, R58547, AA018552, AA306158, W45031, Z40222, T32056, AA846872, T89544, H83085, W44584, R08617, R10343, H26970, AA743814, AA704417, T39659, T40715, R57905, AA724054, H82867, W67398, AA529982, AA980466, AA671346, AA538333, AA521837, W13639, AA619136, AA261447, AA760399, AA200739, AA087046, AA791386, T43427, AA123687, AT000037, AA943400, C50419, AA294059, C63449, A1044792, AA819898, T21132, H76371, Z26415, AA997929, AA438884, AA882631, H34142, C42761.

SEO 1D NO.430

30 AE000786, AC002534, AC003671, D87742, AF045635, Z99280, AP000019, X73301, AF055066, N22700, N26671, AA852538, N39824, N31174, F05933, AA309729, AA300297, AA004740, AA600042, N52860, AA432213, AA429602, R21849, R22978, R39564, R33584, R37509, AA333530, AA530506, AA049905, W47859, W63897, AA549928, AA999511, 35 AI011725.

SEO ID NO.431

- AB001913, Z48239, U32721, Z74894, L81904, AC003687, AC001215, U67584, U41034, Z68317, AF015155, AC003998, Z70035, AF003132, AF014938, AI052250, AA135173, AA658198, R52882, AA935209, AA037599, R81636, F06786, W29045, AA971063, AA487956, AA093026, AA700660, AA449166, AA025351, AA206311, T07904, R68234, AI039243, AA025362, T57194, AA441972, AA028174, H73189, AA448028, T86650, T79739, 45 F06258, AA678347, AA097583, AA711849, AA117187, AA104610, AA124472, AA217592,
- AA596277, AA061983, AA124750, AA230566, AA671835, AI007443, AF009727, AA851627,

AA800685, C92713, AA949956, AA898046, C91428, AA858740, AA851377, AI009790. F14079, AA979708, D37705, AI013904,

5 SEQ ID NO.432

- AF001076, AF001075, U32681, AC004534, M33582, L24501, AC003113, Z85995, AC004142, U40800, U43375, AC005200, AC004613, Z71265, Z35637, AA496898, AA083885. AA018400, R78916, AA809238, C00727, AA593664, T05906, R84392, AA356896.
- AA348753, AA435639, R09284, T78152, AA622134, T77125, AA837697, AA079068. W63866, AA939532, AI036540, W33698, AA113497, AA532216, AI008021, AA540703. AA816271, AA990700, AA950767, AA816608, AA950988, AA141584, AA788149, AA440091, AA540934, AA955627, AA539015, AA391660, AA979647, AA956638, AA441643, AA264460, AA817098, AI009786, AA695592, AA440436, AA440938, AA821245,
- 15 AA816607, AA802380, AA140871, N60235, AA944825, AA979037, F20054, AA698203. AA539962, AA536282, AA390297, AA979047, AA957711, AA950509, AA950006. AA942738, AA802556, AA440400, AA440502, AA390305, AA539067, AA539195. AA440351, AI013909, AA946273, AA942516, AA848499, AA817204, AA539630, AA680973, AA440330, AA955289, AA948815, AA924063, AA820547, AA536381, AA990836.
- AA735210, AA891455, AA141585.

SEQ ID NO.433

- AB006707, AC004100, Y13034, AC000365, AC004598, Z81051, D78804, W27129, AI017782. D29518, AA027089, AA148983, AA747315, AA411220, AA701252, AA687243, AA422103. R70141, AA435001, AA404079, AA008128, AA572486, AA795341, AA004158, AA051674, W17808, AA674683, W13245, AA271695, AA433616, AA517270, AA144388, AA177843. AA822377, W71938, AA562569, AA518887, AA734703, W62333, W16372, W08500, C82830, 30
- C83686, F23094, AA555617.

SEQ ID NO.434

- Z73359, AC003982, AF030453, X51875, AC004084, AL008725, AC003109, AC002553, AC004491, L81854, U52112, AL021939, AC002350, AC002059, AC000026, U91321, AC003043, AF006752, Z98036, AE000658, AP000040, AC002074, U85195, AC000067, AB001523, AC002316, U71218, AC003667, Z82976, Z54147, Z97054, AC004778, L78810, AC003110, AC003010, AP000032, AC002551, U63721, AC004685, AC003072, AC002310,
- U62293, U95740, AC004776, U91323, AF016898, U91328, AF053356, AC004382, AC004638, AC002045, AC004447, AL021155, AF001549, AC003103, AF024533, AC002301, AC002115, AP000056, AC000085, Z67997, Y10196, Z83843, AL022145, AC002418, AF024534, Z84480, AC002288, AC002425, Z84474, AC004386, AF064861, AC004623, AC004520, AC004151, AC002300, U95739, AC002126, AC000397, L48038, AC004125, AF001550, Z83838,
- 45 AL022396, AC002116, AC004493, AL008635, AP000030, AD000812, AC000120, AC002390, L44140, L40817, U96629, AC003104, AC003956, AC002287, AL021393, D16583, U89387,

AA249372, AA063358, N35927, R98687, AA737099, AA077052, AA443055, W42588, AA602540, H90843, H77956, AA490072, H73550, AA501781, N42646, AA318894, AI050922, AA653009, H81732, R94321, N55560, AA486680, AA005163, AA767276, AA658101, AA984920, AA452879, AA486580, AA322484, M77904, AA904211, AA149033, AA047275.

- 5 AA866017, T06564, AF034176, AA643794, AA614197, AA603387, AA663074, AA758200, W38349, AA230155, N23919, AA320105, AA22548, F00688, AA486925, H29220, R00987, AA652910, AA188423, AA579437, AA533241, A1005241, T86730, AA991792, AA226142, AA229080, AA452998, AA229034, AA187277, AA748140, AA181070, AA525157, AA728933, AA808945, AA468319, AA468466, H47143, R36518, AA29776, AA715850.
- 10 AA487074, N22153, W02033, AA636102, R81351, T58747, AA834765, AA100887, AI032585, R97802, H53321, AA372323, C06329, AA978101, AA459285, AA434037, AA459514, AA188897, T91017, AA491869, AA669329, AA492015, T74259, AA501426, A074026, A1032875, H70425., AA423702, AA475943, AA073266, W64810, W64836, AA764537, W58950, C87864, W62449, C87922, AA501128, C86532, W62377, C88111,
- 15 AA823826, AA620234, C87438, AA501262, AA516955, AA863851, AA261001, AA427243, AI020118, C88193, AA764353, W97167, W77222, AA501297, AA863837, AA030390, AA261578, AA990245, AA717794, W51648, W61986, AA920656, C79677, AA414764, AA638449, AA238287, AA712062, AA590502, AI035290, AI035307, AA517646, AA516629, AA109592, AA589831, AA124697, AA169924, AA388267, AA138366, AA832570, AA58989, AA41465, AA43877, AAA16977, AA67878, AA67878
- 20 AA138380, AA253992, AA638888, AA544053, AA138372, AA049041, AA216836, AA260786, W18022, AA145713, AA288642, AA619003, AA726578, W18014, AA163505, C79718, AA217036, AA177903, W97045, W97935, AA272788, AI042720, AA688882, AA154624, AA733622, AA881552, AA062017, AA014169, AA049365, AA607518, AA501217, AA189219, AA216905, W90879, W54605, AA863868, AA175510, AA049778.
- 25 W06387, H39328, H39389, AA550283, AA817848, AA894110, Al008183, H39351, AI013937, AI044039, H34360, H33967, AA874831, AA924449, AA998556, AA942712, AA858572, H32904, AA944790, AA923995, Al008665, AA850198, AA850898, AA9556448, AA9893806, AA850727, AI010426, AI028965, Al009485, AA945588, H31789, AA107123, AA956675, AI044620, AA800974, AA944794, H33833, AA859718, AA802166, AA818876, H35257.
 - 0 AA925125, AA550596, Z36495, AA957396, AA996923, H33511, AA942692, AI012741, AA891642, H31489, AA056877, AA893827, AA893994, AA891239, AI009626, AI029815, AA943813, AA859010, AA925965, C93368, AA924474, AA957108, AA799649, H33090, AA849868, AA859019, AA924716, AA964244, AI044282, AA946046, AA848498, AA963624, AA801011, AA851699, AA891712, AI009418, AA817797, N38007, AA849327, AA859260.
- 35 AI044945, H32789, AA859214, AA943379, AA892292, AI009642, AI045812, H31499, AI029897, AA735681, AI008303.

SEQ ID NO.435

- 40
 U73338, Z92822, U75743, Z83733, L21672, AF047657, AC004440, AC004082, D38514, Z92817, Z48717, AC002089, AA504613, AA504708, AA280659, AA347314, R86087, H42689, AA972733, AA233640, AA165330, W21594, AA314347, AA552609, AA513036, AA385198, AA584025, AA639118, AA909485, AA746900, AA777991, H58467, AA730763,
- 45 AA729376, AA772741, AA630871, AA583071, AA523676, AA703351, AA463908, AA320676, N88631, AA865077, AA954801, AA877969, AA095487, AA635994, AA130491,

- AA089939, AA082240, AA188288, T61375, AI022488, AA991718, N95570, AA654041, AA643042, AA640880, AA662627, AA579495, F20436, AA385562, AA143245, AA846093, AA828770, AA738334, N95767, AA600874, AA482937, AA369439, AA177081, AA314679, AA348788, AA300820, T52356, AA230225, AA315847, T61408, D51249, AA985010,
- 5 AA857363, AA812272, AA308460, AA578698, AA521378, AA514011, AA503457, F21217, AA331107, AA330296, AA181874, AA186669, AA155740, AA148538, AA092441, AA085696, AA084377, AA081603, AA226239, N55743, T75023, AI024535, AA936154, AA876622, AA664666, AA781581, AA316413, AA558317, AA657547, AA652927, AA640404, AA591113, N96627, AA739559, F15294, AA900343, D27665, C83826, T13884, AA752067, N97965, AA946497, AA041137, AA509018, C49783.

SEO ID NO.436

- M90969, Z81084, U12361, U12351, Z70270, U12354, U12357, U12341, U12371, U12355, L39874, U12364, AB011476, Z97343, U58332, AC005177, AB007727, Z81594, M81327, AL023835, AL008633, D86971, Z82183, Z83229, M92089, AC003075, AA884816, AA828313, AA018399, AA811214, AA135468, AA281425, AA975189, AA789178, AA083884, AA689328, AA811901, R79014, AA249735, T25115, AA928681, AA909608, C02049, AA775560, AA788871, AA596081, AA295431, AA824386, W74315, AJ018411.
- 60 C02049, AA775560, AA788871, AA596081, AA295431, AA824366, W74315, A1018411, AA658473, AA490714, AA259084, AA261999, AA258850, H85086, H44212, H18385, T63244, AA586967, AA676729, AA988830, AA059065, AA639804, AA916605, N34090, AA057472, AA635164, AI015641, AA483135, AA632080, T71816, C00094, T29391, AA601514, AA863447, R56653, R81829, H95199, D56941, AA031937, AA001637,
- AA219653, T70119, AA579623, T77620, T89753, AA583770, R26438, H23301, D56964,
 N62896, AA133821, AA426099, AA443694, AA467857, AA452410, AA889752, AA577952,
 H59342, N76636, AA074511, AA031960, AA010622, D79943, AA721161, R68690, R22448,
 AA774612, T03471, AA578857, AA251387, AA911301, Z45012, AA001255, R85579, T70242,
 Z40360, Al033370, AA663627, H91710, AA150149, AA761656, AA700292, AA401656.
- 30 AA472361, AA518290, AA190148, AA437886, AA420360, AA792009, AA547655, AA574533, AA414890, AA684269, AA655256, D18644, AA645420, AA563394, AA6666890, AA693000, AA538546, AA422806, AA289008, AA590748, AA546864, AA414728, AA561619, AA638415, AA547311, AA540541, AA952189, AA391985, AA540110, AA497363, AA990629, AA392796, AA439185, AA390996, AA263604, AA539975,
- 35 AA541193, AA391712, AA979008, AA264350, AA941371, AA951601, AA202932, AA978849, AA950814, AA941313, AA538635, AA951517, AA246411, AA438770, AA541057, AA201626, AA942497, AA978910, AA392477, AA202492, AA203033, AA949329, AA950926, AA941131, AA941565, AA941668, AA816730, AA439410, AA202468, AA820668, AA803082, AA392410, AA247023, AA735607, AA550001.
- 40 AA859752, T02714, AA957765, D33914, C24012, AA598067, AA892496, AI009837, C91907, AA701741, C24292, AA585791, AA858565, C93748, W03311, C24200, AA963050, AI045802, C24123, C90290, AI029888, AA832530.
- 45 SEQ ID NO.420

Z22751, AC000116, AP000053, L21672, Z95334, Z95704, X15198, AF076243, AF074021, AF015172, AC003671, Z81507, Z81082, U40954, U29700, Z82001, U67487, AF014117, Z81086, AF012811, AL023589, AC004082, AE01146, AB009518, Y12602, X61201, AF016433, AL021492, AB000800, AC002089, AA504613, AA347314, AA280659, AA504708, AA469191, AA251938, AA512935, AA471183, N32731, R07623, AA085696, AA113894,

AA469191, AA251938, AA512935, AA471183, N32731, R07623, AA085696, AA113894, AI041226, AA677026, AI049675, AA463908, AA569550, AA488003, AA573164, AA250120, AA591113, AA472211, AA801811, AA739559, N98071, N97723, AA900343, AA509018, D27956, AA041137, AA943027.

SEQ ID NO.421

Z35659, M67991, U23523, L12445, U32751, AE000775, Z68115, Z48334, U53501, Z68116, D85887, U65655, AA256839, H85292, AA852539, H58434, AA009809, W90074, R76454, A630237, AA306158, AA704417, H46425, T40715, AA018552, W45031, AA743814, R37523, AA976072, AA652029, T89544, T32056, H26970, H82867, AA724054, M91507, T39659, Z40222, AA745486, AA846872, AA532660, R10343, R08617, R57905, H83085, W44584, AA529982, AA619136, AA261447, AA087046, AA760399, W13639, AA200739, AA521837, AA980466, AA538333, T43427, AA791386, AA979149, AA123687, AT000037, AA819898, H76371, AA882631, AA294059, H34142, T21132, AI044792, AA438884, Z26415,

SEQ ID NO.422

AA997929, C12250.

25

40

AF055066, D87742, U03517, AE000786, Z77661, U96410, AC002534, AC003671, AF045635, AL023828, Y13027, X14564, AC002133, L25599, AF016485, AF038667, AB005248, Z99280, U00066, N22700, N26671, N39824, N31174, AA852538, AA309729, F05933, AA300297, N52860, AA429602, AA432213, AA004740, AA600042, AA333530, R39564, R37509, R10751, AA779751, R21849, R22978, AA326278, AA828131, AA779268, AA021539, AA134969, R33584, AA272205, AA198541, AI050266, AA008780, W50581, W54065, AA013712, AA790199, AA530506, W39795, W47859, AA544020, AA285935, W78367, AA541855, AA756426, AA543223, AA407351, AA049905, AA980096, AA198960, W59406, AA543470, AA051746, AA051740, W63897, AA54462, AA549928, H35214, C22086, AA540625, C44615, C44702, C66923, AA536593, C50811, C45621, AA695657, C43409, C42954, C39471, AA566406, AA802971, C22260, C09924, C08764, D75395, D74740, R30020, AA997324, C42563, AA996401, AA695316, AI011725, AA956731, C69349, D70026, C09085, AA697043, C47594, C44847, AA956205, AA951676, AA824226, C49923, C47102, C90229, AA685785, C68943, C49315, C45448, C09296, L47915.

SEO ID NO.422

AE000853, M26434, M12452, AC004383, X96753, U31787, X55034, U74466, Z98866,

45 AF007146, D10483, AE000119, AC002382, AA312671, AA282643, D83876, N50595,

AA187413, T83492, AA043135, W24247, AA319013, AA362082, W58065, T33545, H10621,

H10530, AA377379, Z24890, AA280559, AA383048, W39165, C04061, AA431253, AA432265, Z19408, T19207, T30424, N87732, T30773, AA887987, AA889949, AI027021, R50885, AA339666, W93928, R88247, AA349119, AA886792, H94757, AA336010, T93851, AA028181, AA435882, AA725635, R05354, AA169888, AA811848, T27916, R82851.

N46251, W73523, AA613127, AA701208, AA416921, AA287199, AA420439, W44786, AI016901, T04879, R21563, AA255647, AA808699, N75835, AA764987, AA215889, AA316287, AA782982, AA324022, AA420440, AA424896, AA911858, N98986, W39384, AA397600, W44785, D30975, AA797057, AA407279, AA403499, AA795751, R74779, AA138599, AA839444, AA209842, AA756246, AA859362, AI011220, AA140641, AA697034, AA997115, AA141282, AA851172.

SEO ID NO.350

- AC004766, AC000365, Z69796, AC002113, AL021069, D88026, Z81051, D50916, X91617, U15025, Z92547, X97604, W61030, AA954169, AI031842, AA838837, N52974, AA176341, AA588774, AA121949, AA187312, AA150669, AI026041, W58398, AA350776, N50541, AA825435, AA570012, AI031987, AA150793, AA837996, AI031602, AA101636, AA320713, W15235, AA919051, AA101635, N98564, W39035, H10349, AA878033, AA040866.
- 20 AA432265, AA669911, AA280315, AA431253, AA669917, AA631159, AA856641, AA121931, C04061, N44345, AA865662, AA858033, T30424, AA282538, Z28505, Z19408, T83345, AA034925, AA916616, AA034933, N87732, N54028, AA318757, AA043135, H10530, F00384, N56380, T33545, AA633832, W39165, H10621, AA377379, AA319013, AA969361, AA436123, A1016907, AA291976, AA226925, C15007, AA131733, N71334,
- 25 AA164385, AA292165, AA523137, AA293317, D51248, AA641507, AA257016, AA636038, AA180746, AA868969, H24765, AA292065, AA398577, T63419, T97980, AA576119, AA270174, AA245702, AA711339, W55650, AA407278, C79004, AA561714, AA667194, AA288522, AA204018, AA137940, AA286384, AA203785, AA125556, AA265874, AA474321, AA795566, AA537211, W78283, AA671347, AA111556, AA071706, AA511061,
- 30 AA867100, U91685, AA166356, AA153041, AA200270, AA981316, AA891230, AA848299, AA924412, AI008010, C91817.

SEQ ID NO.418

35

- L11670, X94265, M60871, AF053745, Z93021, L35272, U62631, AC002511, AC004243, M37033, AF043703, AA148393, AA147086, AA322967, AA322914, AA353196, R20069, AA054189, AA362206, AA054169, AA360832, T65088, R37922, H70124, AA360994, T19006, AA731897, AA503711, AA431090, T85391, W74404, AA055285, AA158657,
- 40 AI002203, H09138, AA297027, AA417202, AA991752, AA976655, AA621848, AA481261, W45634, AA811477, AA694317, AA330583, R68013, AA058932, AA286960, N45566, AA287919, AA731027, T71098, H92640, N40079, N44797, AA707671, AA464675, AA253389, H45906, AA968917, R64206, AA431091, AA773762, AA253444, AA731754, H42129, N32469, N90240, AA743738, T58992, AA455204, AA794141, AA245190,
- 45 AA110302, AA178023, AA673874, AA212119, AA274662, AA895062, , AA901423, AI029474, AA875475, AI012039, AA799473, AA942674, AA924688, AI010780, AA787461,

40

AA951210, N96484, AA231739, AA712303, H32118, D70105, AA957641, D69835, D69760.

SEQ ID NO.419

AE000658, Z94277, AP000056, U85195, AC002529, AC004259, Z19108, X72582, Z81308, AC002416, AF064863, AL022580, AC002390, L36897, Z83836, X02421, AL031024, AC000389, AF011889, AL021768, M63839, AC003103, AL022727, X70810, Z69360, AL009051, Z99660, J03300, Z79602, X00044, X06254, Z73905, X00480, L35664, X55736,

- 10 Z68144, V00683, J01465, Z11874, X52046, AC003074, AC000119, AF002109, Z82274, AL021939, Z93722, U82668, AC002357, L48177, Y08062, Z99572, AC004482, M80599, L39655, AL021997, Z97355, AC000098, AE000659, AF016661, AC003000, AE000440, AC005012, AC003100, AA904418, N24778, H83690, AA382262, AA331106, AA609762, AA432261, AI015258, AA136051, AA130132, H60707, AA918423, AA130119, AA383217,
- F03710, T65372, AA905286, AA776540, AA018501, D52831, A1015086, F09402, AA830369, D20019, AA382789, AA088173, N25204, D62401, AA789201, AA058373, AA129862, A1051093, AA629332, H22958, R68944, R63968, AA826414, AA258314, AA435914, F04748, AA405559, N90250, W81127, H82506, AA984104, AA937297, AA830368, AA620335, AA397874, AA165524, Z39390, AA918246, AA629349, C80595, AA174553, AA463120, AA989945, AA072603, AA590182, AA967846, C87349, AA924689, A1045726, C90061
- 20 AA389945, AA072603, AA590182, AA967846, C87349, AA924089, A1045120, C90061, AA514083, AA963786, C91562, C25634, AA283499, C91337, C89627, C92908, C92150, AA818963, Z29889, C93719, C58285, C25530, C90119, C57162, AA471570, C89706, C24337, C91047, D22759, AA390616, C94110, AA265012, C59331, AA542533, C33821, N97688, AA751636, N38534, AA395695, H16491, N98027, C49783, C68487, C69927, C94082, C74461, C46590, C62732, C92847, A109618, AA41466, D23765, AA41474, C02021, C74659, C74782, C74783, C68487, C69927, C94082, C74782, C74783, C74784, C76782, C76782, C76782, C77844, C76782, C76782, C77842, C7782, C78782, C78782
- 25 T44510, C45504, C92722, C93847, AI029615, AA141050, D27665, AA118244, C93931, AA893204, C94120, AI030030, C92508, AA842966, T14900.

SEQ ID NO.416

U78312, D26185, U88182, U58972, AF045775, Z99104, AC002070, D44915, D81665, AA243373, AA830325, C15608, W45435, L44402, AA768320, AA215717, AA740983, AI032793, AA113113, AF034174, C00818, AA953516, AA643067, AA758212, AA154161, AA717139, C24338, AI026597, C94015, C90664, C94074, C90179, T38999, H34977, AA76414, A890818, AA96818, AA968

5 AA754145, AA892815, AI028926, N27312, AI030810, AI045851

SEQ ID NO: 437

AF012072, Z34918, AF012088, D12686, AJ001046, L22090, AF067220, AC002343, Y10804, U39676, U66160, Z46240, Z97205, X84923, U64827, AA191463, AA113265, M85634, AA632286, AA744722, AA743070, R80171, AA659197, AA935439, AA262384, AA580810, AI039220, AA857299, AA019268, N42261, N65990, AA505387, AA618058, N75063, AA303191, H46968, AA740463, AA161498, AA019241, W31772, AA908395, AA488220, AA206825, W32291, AA931076, AA746487, AA455451, W31201, Al016519, AA031646,

AA936118, AA923624, AA633053, AA609344, AA488254, AA455452, F18818, R72160, T59794, AA722193, AA491642, A1039617, AA609958, AA078878, AA843990, AA742679, AA722666, AA024633, AA736602, H11063, AA281783, AA722981, AA715375, AA437201, AA234719, AA226545, AA512922, H40724, W84602, AA863411, AA715350, AA436462,

AA441796, AA133599, W74161, R53463, AA806686, AA576035, AA226209, AA171367,
 AA166246, AA171042, C80644, C77834, C80833, C78609, AA655154, AA607383,
 AA445222, AA899256, C19374, C60443, C65586, C62715, D36745, D28092, C83994,
 C94615, AA944136, AA950370, AA875505, AA696127, C65315, AA957813, AI008521,
 Y09360, T26752, H555061, C39854, AA900968, AA891252, AA540438, AA943755, AI045237,
 AI043252, C64689, AA699375, AA440250, AA979307, AA858492, AA858492, AA858497

SEQ ID NO: 438

AF012072, U04282, U93694, AL010269, Z99104, AB002150, AC002541, N34551, AI017135, H99291, AA903329, AA937078, N34541, AA425182, AA457547, D59286, D62357, H89366, AA526320, N29478, AA609043, N75058, AA490854, AA457747, H89553, N66282, D62145, AA665666, W79550, AI014367, N92469, R50684, N25822, C21162, AA468635, AA766801, AA163459, AA289612, AA209088, AA172736, AA982479, AA137939, AA445488, C86651, AA254210, R75462, AI019204, AA509441, AA002277, AA655398, AA451453, AA958946, AA960423, AA958949, AA81587, AA397202, AA734512, AA893170, AA998982, AA964477, AA819125, Al009093, U30849, Al029468, C93730, AA570819, F13984.

25 SEO ID NO: 439

AF012072, AB003362, AC004289, D29759, X87108, Z48716, AF007128, U18916, Z81089, AC004100, AB010073, Y07749, U36624, AA425125, W40521, AA774760, AA249536, AA025079, AA293841, N24286, R17022, AA284646, AA813789, AJ003275, AA703531, F06699, AA916681, AA991282, N91049, AA769441, AA806272, AA922902, AA770557, N39869, AA604524, AA669349, AA766229, AA814368, AA502725, AA044583, H66421, AA912519, R54165, AA033569, AA972243, AA058420, C04504, N75161, AA477082, AA428824, AA878232, AA477360, AA179025, Z98510, AA479741, AA055480, H29633, AA744586, AI041216, AA781138, AA058384, W01276, AI039716, AA456309, N85658, N36178, N34263, N34260, AA499955, AA623031, AA871801, AA623053, AA762442, AA061706, AA387192, AA142665, AA396105, AA050454, AA220744, AA013789, AA518182, D36337, AA098651, AA998845, AA787710, C23744, Z92701, AA080702, AA454282, AI044363, AA713021, AA191846, AA712577, AA893720, AA676129, AA550275, C23701, Z29876, AA257810, D66495, C93766, F14340, C41638, T38212.

SEQ ID NO: 440

40

AF012072, U04282, U93694, Z83838, A1229042, AF051934, AC004238, Z74352, X84162, 249209, Z74351, Z48717, AF005675, AF005674, Z74072, U04280, X56564, AC004414, AF005697, AF005694, AF005680, AF005673, AF039057, Z74071, AF005669, AF005683,

35

AF005679, AF005682, Z48432, AF014948, AF005670, AF007943, AF005681, AF005678, AE001040, AF005684, Z68748, U53337, Z75714, AC002541, L12722, U41624, AF005672, AC004016, Z97342, U29157, AF067619, U88173, U88166, AC002465, Z99281, AB008681, Z72831, U62943, AF029791, L05514, L04132, AF005685, AF005671, AA425182, AA457547,

- 5 H89366, AA937078, N34551, AA903329, AI017135, N34541, H99291, D59286, D62357. AA665666, N92469, AI014367, W79550, R50684, N25822, AA457747, N66282, C21162, AA468635, AA490854, N75058, N29478, AA526320, H89553, D62145, AA609043, N44557. W05794, AA705169, H06933, W88709, R42683, AI017605, T68350, N95594, AA336339, AA528395, AA083916, AA147928, W25684, AA604164, H93075, AA013334, AA776703,
- 10 AI000693, AA163459, AA209088, AA289612, AA172736, AA982479, AA137939, C86651, AA254210, AA445488, R75462, AI019204, AA509441, AA002277, AA655398, AA571528, AA139333, AI021204, AA451453, AA537146, AA537280, AA271829, AA612432, AA276965, AA433546, AA516947, AA821737, D18988, W16283, AA958949, AA762234, C85907. AA589522, C76067, AA690108, AA759947, AA968368, AA003958, AA063879, AA166186, AA397202, AA608321, C76476, AA177406, AA615429, AA832682, AA216884, AA959933,
- AA960279, AA178520, AA197396, AA254248, AA646552, AA270884, AA960071. AA032352, C76479, W53243, W41360, AA794425, AA673901, C76467, AA267923, AA959668, C79956, AA960423, W35735, AA623342, AA893170, U30849, AI009093, AA964477, AI029468, AA998982, AA819125, AI009853, AI008017, C10511, AA658642, AA874889, AA944429, AA193834, C83963, T18112, AA495115, AA550212, AA848179, W51512 AA842891 AI044502 AA257402 C94558 AA728034 AA941899 AA727986. AA273092, AA848184, AA728058, AA570819, AA728040, F13984, AA848180, AA728053,
- N43466, AA280453, AA997836, R82900, AA542796.

SEO ID NO: 441

AF012072, D12686, L22090, Z48716, Z97336, U23518, AC002090, U33936, Z81089. L20738. U90338, M83681, Z74019, L20736, L20735, AC004782, AA931479, AA774760, AA293841. R74054, M85634, AA025079, AA402442, AA425125, AA779433, Z99374, H09880, AA456309, W01276, AA814368, W84888, AA502725, H01349, AA703531, AA744586, AA159913, AA056242, AA766229, AA769441, AA131358, AA991282, AA806272, T16876, 738729, AA972243, AA480453, AA617800, AA655434, AA163547, W30630, AI037737, AA623031, AA871801, AA623053, AA546712, AA142665, F23005, Z29876, C61324.

SEO ID NO: 442

AF012072, Z34918, AF012088, D12686, L22090, AJ229042, AF051934, U84100, AF005680, Z48432, AF055066, AF005679, AF005674, AF005673, AF014948, AF005681, AF005683, AF005670, AF005675, Z74072, AF005682, AF005697, Z74071, AF039057, AF005669, AF005694, AF005685, AB008681, U29157, AF005684, AC003009, AC004532, Z68748, AC000066, AF015454, L05514, U62943, L04132, Z68296, AF005671, AF005672, U03496. AF005678, AF030884, U84099, AC004763, AI014367, N92469, C15377, AA134568, W05794, 45 W17157, W79550, AA468635, R50684, N25822, AA665666, AI039626, AA134567, R50683, AA457747, Z26996, AA491028, N44557, C21162, AA425182, N75058, AA527291,

AA147590, AA730099, AA910355, AA011174, AA095103, AA610357, AA658171, AA211545, AA059268, AA579633, AA173380, H50624, A1024443, R73685, AA176799, H56415, AA010443, AA713681, AA521194, H01346, AA312008, AA613629, H89553, AA604164, H93075. AA705169, H79772, AA336339, AA776703, A1017605, AA563630.

- 5 AI000693, AA102784, AA509441, AA655398, C86651, AA002277, AA210375, W61392, W61394, AA840592, AA822617, AI019204, R75462, W30394, AA008667, AA254210, AA103273, AA172736, AA261254, AA839128, AA033419, AA014557, AA212904, AA762524, AA080224, AA409974, AA139181, AA881971, AA538296, AI048331, AA959429, AA139372, AA538203, W29456, AA538068, AA271264, AA209088, AA244839, AA530597.
- 10 AA174577, AA104643, AA152553, AA038437, AA608039, AA048344, AA451453, AA271829, AA762267, AA762288, AA140341, AA893170, U30849, D33256, C11247, C54341, AA720446, AA624966, AA658642, AA800217, AA925357, T18112, R82900, AA999529, AA241425, AA495115, C36016, AA241554, AA941899.

SEO ID NO: 443

15

AF012072, Z34918, D12686, AF012088, L22090, AJ001046, AC002343, U41109, Y10804, X84923, D90909, U23179, Z49127, M21538, AF012759, AF025311, U66160, U95072, U64827, L06314, W28058, AA744722, AA743070, AA632286, AA191463, AA213861, AA226545, AA618058, AA437201, AA488220, W31772, AA512922, AA609958, W74161, AA715375, W31201, AA226209, AA719430, AA161498, AA576035, AA455451, H46968, AA722666, AA806686, N42261, AA740463, AA908395, AA609344, AA303191, F18818.

H40724, W87293, AA857299, AA078878, AA936118, AA488254, AA455452, AA262384, C80833, C80644, C77834, C78609, AA171367, AA510297, AA607383, AA692251, M79676, D28092, C19374, AA754258, AA963758, C65586, C62715, C60443, D36745, C55049.

30 SEQ ID NO: 444

AF012072, Z81472, AC002541, U04282, AC004056, L12722, U88166, AF029791, U88173, Z72831, U93694, AE001040, Z83838, U61954, AA457547, AA937078, N34551, AA903329, AI017135, H89366, N34541, H99291, D62357, D59286, AA425182, N66282, AA526320, N29478, N75058, AA490854, AA457747, H89553, D62145, AA665666, W79550, AI014367, N92469, AA609043, R50684, N25822, C21162, AA468635, AA278278, T80867, N44557, AA714177, AA969095, AA972159, AA163459, AA172736, AA289612, AA209088, AA982479, AA137939, AA445488, C86651, AA254210, R75462, AI019204, AA509441, AA002277, AA655398, AI021204, AA451453, AA537146, AA537280, AA516947, AA893170,

40 AA819125, AA998982, AI009093, AI029468, AA964477, U30849, AI009853, AA550212, AA570819, F13984, AI044502.

SEQ ID NO: 445

45

Z48245, X83276, Z74247, X99000, M94227, U08352, U03473, AF018435, L23514, U67178.

X94357, Z46260, L15551, Z72778, U32716, AB007467, U69552, Z35927, Z72777, M33278, M93143, N28296, AA663317, Al040617, AA971393, T67549, H95292, AA017197, AA375721, F08457, AA554095, AA767869, AA553380, AA235268, AA355944, AA612265, AA596275, AA098609, AA185885, W12188, AA881433, C78467, AA896711, AA154044,

5 AA215085, AA859725, AA899160, AA803715, AA539999, AA391055, AA440858, AA942341, AA841067, AA949896, AA438398, AA540338, AA246238, AA696942, AA440043, AA471413, AA694720, AA950337, AA949459, AA941839, AA264579, AA820662, C90662, AA817450, AA540949, AA735842, AA439703, AA951570, AA950029, AA952009,

10 AA540420, T17538, AA979292, AA438336, AA264221, AA264219, AA949999, AA951921, AA536418, AA820922, AA540051, AA441238, AA948809, AA990845, C93099, C62127, AA391443, AA990743, AA951533, AA941915, AA941397, AA820068, AA541131, AA439451, AA979218, AA950015, AA820742, AA202727, AA520774, AA949921, AA820751, AA264112, AA697033, AA695530, AA541155, AA979643, AA978852,

5 AA949685, AA952137, AA942561, AA820429, AA264776, AA440402, C92054, D24625, C91180, C92438, C93119, AA874812, C23728, C72462, C92892, Z30501, C72097, AA042346.

SEQ ID NO: 446

0

AC004463, AC004158, AB006697, Z98048, AB009055, AF001549, AC002524, AC002406, AC003964, L10986, U18972, X65636, Z81089, Z95126, U73479, AC003086, Z99497, AI025516, N25214, N67129, AA903608, AA476806, AI051500, N31470, AA446451, AA027854, AA363793, AA605127, N51334, W42456, AA547935, AA918084, AA630088, AA938286, T89721, W03461, AA311168, AA788746, T34721, AA363794, R41694, N44037, N63123, N44264, AA173913, AA055080, Z39124, R50963, AA299991, H86158, N36390, AA730429, C04162, AA034988, W42561, D62071, AA653819, AA665081, AA055134, H71242, AA029314, AA677064, N41425, W69895, W69841, AA06520, AA029867, AA040154, AA693737, AA701241, N47678, AA609289, R15106, AA088480, W24445, AA480782, R51810, H10220, AA579772, C79455, AA792161, AA671422, AA756344, AA822139, AA209822, AA118978, AA516715, AA762373, AA267569, AA245913, AA153688, AA239881, AA139444, AA117206, C78532, AA851788, AA800969, A8499566, AA901258, AA924056, A1011424, AA923925, A1010363, C66629, C67564, C70380, C91257,

SEO ID NO: 447

35

AA999535, C21953, AA549907.

M62953, Z95126, X55749, D89218, U31907, X55751, U60480, U97017, X55747, D63665, AA098876, W65387, AA452524, W61291, W48754, AA320709, AA364030, AA828979, AA311692, AA315870, A1040491, N26738, AA745708, AA053636, AA234186, H90042, AA302541, N55714, AA361364, AA101794, AA102356, AA129123, AA279517, T63748, N56506, T63422, AA092931, T82177, AA249676, AA205858, AA098877, AA773566, AA886992, AA093538, AA342846, AA224364, T60516, AA219081, H57387, N42040, R93314, W60845, AA236104, AA452600, AA150480, T89078, AA221191, AA184431, C89104, AA097593, AA467585, AA571506, AA867389, AA896118, AA163079, AA472882,

D17813, W64901, AA123458, C23074, AA925213, AI010563, AA900880, AA955169, AA925719, AI010069, AA925289, C23075, AI011062, AA945182, C26456, W05857, C28210, AA785779, AA801957, AA990976, AI029646, H04730, AA819590, AA924393, AA495335, AA900197, Z30935, C62163, AA891625, AA597908, AA964238, AA824898, AA900027, AI029124, AA850824.

- AF070717, U14571, Z73429, AC004785, M82819, AC002365, M30688, X54486, X96421,
 Z84814, AC002428, Z97053, AC004627, Z75895, U82208, AF048729, AC004400, AC002980,
 AC002418, M19878, AC002465, U73638, AC002203, X71342, AL008712, Z68276,
 AC002119, U62293, Z98036, AC002543, Z81370, D86256, U14573, AC003071, AE000660,
 AC004472, AC004687, AL009172, AC002477, AC004217, AC002433, AB000877, AC004475,
 AC004651, AC004552, Z84467, X69951, Z46936, Z84572, Z97632, AC003663, Z69917
 - AC003098, U07562, AC002306, AC004084, AL020997, AC004694, AC004761, AC004534, AC004762, AC003085, AC002289, AL022396, AC003009, AC003002, U95742, Z98745, AF053356, AC004257, AF023268, AC004799, Z82243, AC004760, AC003982, AC0004706, Z97876, AF003626, AC003006, U82828, AC002468, M19482, AC002126, AD000812, AC005264, AF064864, AC000381, Z97352, AL009029, AD001527, X55448, AC004647, AC004699, AF020802, AC005181, AC004773, AC003963, M29929, AC000397, AL021920, AA279518, AA629913, AA773566, N69507, AA132750, AA098877, W92962, AA454107, W48755, AA630713, AA669834, AA886992, AA598682, C15093, AA224364, W99961, C15141, AA863200, W72931, R76765, AA992646, W94226, AA580701, AA219402,
- AA197313, H22885, AA470899, AA279517, AA633244, AA374705, AA224225, AA809964, AA903014, F00274, AA705999, AA129124, AA679478, AA342846, W61291, AA452524, AA501614, AA206468, W65387, AA720732, AA854515, R92404, AA628627, H57826, AA357307, AA663966, T48872, AA526193, AA130501, H63193, AI049996, AA631497, AA632479, AA593471, T78484, H74314, AI016704, AA190895, AA515046, H05073, AA8983692, W23546, N64587, AA730581, AA0777776, AA093538, AA655005, AA878149.
- F17700, AA972238, AA491814, AA635442, AA654761, R92629, N54902, A1049634, AA714956, AA493170, AA446657, AA973803, AA603323, AA838140, AA838161, AA662974, AA068993, AA830594, AA528480, AA601405, AA513141, AA484143, A1049598, AA558404, AA553448, AA689351, AA493708, AA832175, AA823826, C88111, W64166, AA501262, W61986, AA501297, AA516955, AA51629, AA517464, AA474026, AA517461, C87438, AA415875, W64884, W51648, AA863851, AA501128, W62377, AA511217
- C87438, AA415875, W64884, W51648, AA863851, AA501128, W62377, AA501217, AA815883, AA575771, AA855776, W71517, C87922, AA682032, C77110, AA547030, C78926, C86532, C85415, C79035, AA267254, AA414457, AA717992, AA275703, AA869376, W82358, AA683670, AA067744, AA239405, C79044, AA068376, AA068629,
- 40 AA409884, AA789411, AA207823, W82382, AI035398, W62449, AA407027, AA840572, AA571579, AA856295, W29776, AA792596, AA119316, AA636169, C80141, AA959694, AA571757, AA763006, AA636431, AA015385, C78109, AA461753, AA840059, W18242, AA117146, AA606436, AA174514, AA645837, C88511, C79965, AA764103, AA560758, AA427030, AA855816, AA163924, AA162296, AA619556, AA755480, AA272861,
- 45 AA222401, W77222, C76269, AA692659, C87864, AI042687, AA608054, AA512244, AA125170, C88193, AI042727, AA691470, AA030390, W97167, AA990245, AA863837,

AA184653, AA636152, AI044039, H39328, AA550283, W06387, Z69957, H39389, W06750, AF064463, H39351, AA923995, H39426, H39930, AA944794, H35257, AI010426, D85806, AI028846, AI045509, AA894110, AA893817, AI008183, H33967, AA107123, AA685069, AA963620, AA859526, AA997451, AA874831, H39321, AA943496, AA550596, AA849991,

- 5 AA943694, AI030760, C07070, AA685291, AI009724, D86672, AA963624, AJ007482, AA848468, AA848467, AA957421, H34360, AA901012, AI044651, AA894153, N65714, H36789, AA965023, AA996668, T04805, T46123, C06795, AA893278, AA892034, AA925284, AI010756, R61943, AA866335, AA90032, AA996023, AA997772, AA849825, AA875253, AA924367, AI012418, AA850317, AA924449, AA925081, AA925965, AA957108,
- 10 AA957649, AA926011, AA892461, AA943060, AI029973, Z36495, AA800915, AA891273, AA926052, AA943756, AA957185, AI028965, AI043956, AA957648, AA550338, AA849883.

SEQ ID NO: 449

15

AB002334, U53881, X91258, Z73307, AL022141, Y13619, AC002531, AF000986, AC002067, Y13618, Z49235, D12705, M37814, AB009801, AB011102, AF013994, AC000079, AA884499, AA284164, AA485240, R62283, N77782, D55907, H03910, R81382, Z30154, A424252, AA283601, AA121309, AI025572, AA962253, AI004251, AA88519, N56823, N24401, AA368012, AA057815, AA657613, AA279167, AA523596, AA355729, AA807695, AA778319, AA714915, AA426051, W86568, H73918, AA458855, H97828, D45288, N39256, AA292707, N35075, AA872385, H81767, N22843, N77543, AA252109, H91720, AA742921, AA137146, W92746, N41004, AA765561, N20388, H12060, AA987884, N90453, AA794705, AA939766, AA217673, AA710704, AA096644, AA855480, AA123123, AA863940, C12945, T02625.

- AB002334, AP000046, X83719, L36453, U80678, X83721, U80029, L01902, X83720, U59823, L13934, Z73424, AC004513, Y13001, AF021875, U40421, AC002420, L01884, U59824, AF008958, L12624, AF040655, L21938, L21941, L36443, M83544, U67476, Y13013, X73124, AC003100, X89598, X91648, AF006605, AC005159, Z54270, AB011370, Z81035, AE000667, Z68000, U97405, AA732697, R34331, AA358170, AA833852, AA252581, AA213793,
- 35 R34468, AA490173, R34353, T97185, AA292885, R61198, AA401718, T07867, AA039614, AA372590, A1040839, R63338, AA099897, R62976, AA453724, AA769045, AA774553, AA939302, AA046369, N20509, AA040932, H10046, F09133, AA854251, AA805822, AA890548, AA187489, AA554354, A1018779, N52869, AA040931, A1004712, AA099723, W89200, F00920, H12131, N59350, AA558555, Z21884, AA550953, AA219189, AA640439,
- 40 AA875891, H66333, Al016358, Al027786, R59332, M77996, AA227489, AA856726, AA993273, R49022, AA464745, AA687164, AA627198, AA203448, N37066, AA511424, AA645131, AA543906, AA815840, AA154089, AA637099, AA592204, AA692951, AA469486, AA543143, AA637522, AA726848, AA592225, AA739228, AA543314, AA850337, N97708, AA817874, Al009736, Al013648, AA567950, C44375, C93776, C10630,
- 45 AA549866, C42364, AA698867, T18073, AA957621, C23354, F14798, AA698522, C34260, T09817, C23134, AA957956, C59717, AA696412.

SEO ID NO: 451

U64205, M80359, M83780, Z83868, Z83869, X97630, X57244, U73647, X70764, AC004299 5 L34260, L13688, U67194, L25785, Z25427, AC003003, AA290719, AA333580, AA320088, AA089778, AA301238, T78225, C02859, AA133557, R59342, AA151030, AA355307. AA364449, W90468, N62695, T86307, AA013064, AA283707, R12018, AA729649. AA741068, AA885078, AA033002, AA116439, AA920775, AA125070, AA764145. AA867040, AA254375, AA545411, AA940520, AA197991, AA033004, AA060127,

AA656077, AA255255, AA500348, AA760017, C87483, AA624168, AA606638, AA638647, AA690532, W54061, AA103712, AA032650, AA052505, AA239397, W64894, W81837, AA239088, AA684473, AA239618, AI006813, AA171315, AA466419, AA469586, AA799242. AA450554, AA008975, AA538510, AA623682, AA949338, T02689, H35550, AA925022. AA660849, AA946458, AA801231, C38991, C22918.

15

35

SEQ ID NO: 452

M80359, U64205, L22181, U80023, W73035, W73300, N53366, T87824, AA703093. AA160135, AA700887, R99177, AA707716, AA102559, AA969546, T71931, T90093, AA983859, D29560, R37874, H93969, H93970, N70406, AI026054, AA081085, W05032, AA775670, AA604551, F04119, AA522703, AA412299, AA642662, AA516359, AA805486. T82912, AA082201, AA627618, H09721, AA629064, H48830, H67287, F02748, R59343, R49054, T28619, AI025563, W89509, AA289395, AA163534, AA144462, AA289076.

W71442, AA518727, AA518719, AA709818, AA050538, AA388749, AA118690, AA162350, AA561275, W64450, W59418, AA189997, AI046928, AA821475, C87479, AA986343, AA798557, AA408805, AA542000, AI019224, AA547301, C87597, AA982987, AA797982. AA710289, AA960512, AA049036, AA739082, AA254552, AA271421, AA924012, AI010191, AA893247, AA900670, AA849965, AI010995, AA849510, AA850806.

- Z83095, X99226, AL022170, AD000092, M34057, AC002563, AA455885, AA455887. AA322137, T35075, AA769930, R01230, AA827188, AA504834, T93623, R60950, Z40208, AA059249, AA056948, AA026612, AA255659, H64787, AA644129, AA131038, W03848, AA045593, W88936, AA935237, AA347403, AA299759, W03716, AA463485, R54894,
- 40 AA343783, R51347, R06563, AA705176, H97169, AA428387, R60775, N41941, AI039282. AA748863, N55087, AA449716, AA953485, AA261890, AA916390, AA215566, AA448570. AA496433, AA768771, R24008, R52329, AA085178, AA521274, AA926771, AA611607, AA734758, AA038257, AA562655, AA137906, AA537656, AA183983, AA881930, AI007060. AA607220, AA610870, AA590687, AA097760, AA929616, AA414333, AA546731.
- 45 AA717857, C77958, T26290, AA923936, AA818217, AA585881, AA849324, AA698914, AA819534, AA900108, C62635, AA567729, W16464, F19943, D24957.

SEO ID NO: 454

Z83095, X99226, AF015720, AC004491, AD000092, AJ229041, AF020803, AA455887, AA455885, T35075, Z40208, AA64129, AA463485, AA326150, AA429596, AA699308, R07162, AA071065, AA830183, AA282097, AA765197, AA705568, Al052477, AA206839, AA322137, AA769930, AA736769, AA207089, R60950, Z45139, AA331966, AA3333204, AA333042, AA337699, AA373228, AA758462, AA678235, AA927053, AA642465, F04204, R24008, R40966, AA521274, AA766823, R86112, N41941, R52534, AA721183, T24502,

10 AA611607, AA038257, AA220520, AA171025, C81417, AA596090, AI007060, AA709887, AA919713, AA940172, AA052549, AA467017, AI010795, AA998153, AA966777, AA585881, AA923936, C62635, AA819534, AA900108, AA818217, R84205, T46224, H76960, C66418, D36526, AA849324, F19943, C65477, C62162, C61080, C60727.

15

SEQ ID NO: 455

AB002299, AC004224, X13329, L21502, U67466, Z17426, AC002068, AF008563, S75812, 0 U32511, AE000865, AF029844, AF037119, AC004318, L21506, AB013898, U80953, Z38112, AE000738, Y09048, D21259, X74481, L02417, AC004653, Z69893, AF005383, Z81132, U86698, L04466, U94331, AC004810, AC001229, AC004072, AC002343, AB008264, AA493600, AA723996, AA853297, AA381531, N55525, AA627410, N64706, N94447, M79081, A1042259, N53652, AA829990, AA280802, AA689429, A1027608, T03122, AA421306, AA644011, AA887216, W16779, AA126601, AA987191, AA757377, AA826566, AA426086, N76390, H38308, AA437148, AA757482, AA809224, H38316, AA283112, AA758267, R98945, N71722, A1018374, T93140, AA502767, AA779456, AA322933, AA581572, AA010188, H38309, M78340, H38498, Z74661, AA537969, AA793095, AA073083, AA030855, W33967, AA726370, AA060956, AA684147, AA546069, AA499463.

- 0 AA272189, AA272102, AA207974, AA795998, AA561705, AA033155, W64274, AA895365, AA856149, AA797925, AA689951, AA645011, AA636189, AA553102, AA474521, AA238892, AA122947, W30514, AA989817, AA592443, AA986322, AA726859, AA718489, AA619395, AA611539, AA474876, AA250685, AA210112, AA166172, AA086700, AA032790, AA880240, AA710338, AA672032, AA656059, AA655728, AA542396,
- 35 AA518796, AA450439, AA288803, AA198240, AA155012, AA140074, AA086655, AA068416, AA794462, AA789390, AA727210, AA692565, AA670613, AA623778, AA104727, AA989798, AA560549, AA560256, AA435097, AA242178, AA166480, AA138743, AA104888, W53189, W13203, AI049019, AA870051, AA821440, AA820026, AA792831, AA771112, AA727470, AA690610, AA655847, AA655681, AA560192,
- 40 AA545993, AA543989, AA396471, AA276976, AA271239, AA154698, AA117175, AA117072, AA033090, AA000904, W64839, W50720, AA870063, AA656386, AA543626, AA212017, T21648, Z34200, AA842684, AI012393, AA965105, AA965100, AI013736, T00419, F14070, AA852055, D66739, N98037, AA037901, AA605834, AA675765, AA817511, AA697935, AA892562, N43435, AA440814, W63412, AA784200, T20467,
- 45 T43072, No7262, AA650703, AA257585, N60216, T37345, AA598358, W99504, T45190, AA802187, AA550545, W06044, AA892049, AA042534, N82355, Z26399, T62417, R90184,

T14059, T45287, C74674, L38092, W99755, AA067394, W00304, N81434, W66347, H37329, T20660, AA740028, C73279, N52102, AA585945, T13851, F14361, D42984, AA900649, AA394913, C63596, AA990883, L33618, W63532, N65650, N96396, AA520592, AA011989, T46663, T04120, AA901777, W63070, AA439791, AA011983, AA057899, AI009831, T13811, AA012415, AA965956, T04062.

SEQ ID NO: 456

- 10 AB002299, U27474, AL009029, AF067186, AB006704, AC005012, Z98755, Y13605, AC004760, U96629, U64858, Z74029, Z30192, AL008631, AB007646, AA608681, AA582845, AA640311, F20547, N67886, N67901, N24059, AA830972, W95887, AA976754, AA774596, AA213435, N58007, AA652125, H77550, AA630655, T70218, R00428, R40274, R45585, N35935, H82545, C00681, AA071400, AA251346, AA213727, T70308, AA278724.
- AA369697, AA278230, T80885, W72678, N20927, W90539, AA054950, AA244010,
 AA808383, AA102675, AA335748, AA512192, AA610234, AA255947, AA335454,
 AA152996, AA958993, AA389038, C87378, AA501323, AA217575, AA266434, AA388650,
 AA763965, AA458000, AA204053, AA764035, AA285614, AA821488, AA072175,
 AA185538, AA545067, AA591058, AA492935, AA896210, AA959499, AA034622,
 AA734999, AA537126, AA711168, AA168990, W42206, AA162285, AA212866, AA497691,
 W29509, AA104760, AA275807, AA285555, AA049208, AA796120, AA956668, AA143918,

AA740021, D37758, AA698742, T09707, AA394829, D76289.

25 SEQ ID NO: 457

D63481, U77572, D83412, U97396, U82664, 298762, D89216, X15723, U16362, M96362, AE000151, X01074, M80481, U84823, U90743, U84827, AF016052, U68536, X66370, AA614415, AA954810, AA908313, AA506437, AA131747, W19261, AA679753, AA962100, AA514635, AA330885, AA465711, AA131835, AA355811, AA583508, AI016171, AA932378, AA641850, AA593807, W91980, AA442732, W23709, AA628013, AA115409, AA729980, AA161067, AI028279, AA659720, R54966, H21354, AA016013, AA527556, Z38258, T35406, AA953344, AA292109, T97386, AA622354, AA587909, W88796, AA946816, W72744, AA040910, AA203494, AA234649, AA456350, AA707062, AA983240, N86057, AA292089, AA877552, R18589, W77923, AA479577, AJ003612, AA282342, AA995805, T07914, AA703208, AA736708, AA091752, T55828, W90263, AA448970, R73381, AA048686, AA792452, W84994, AA048691, AA020086, AA237631, W78466, W71946, AA792423, AA473361, AA199995, W91071, W62391, AA795509, AA612375, C88553, AA415416.

AA619257, W53503, AA718881, AA420201, AA203843, AA656512, W64858, AA671197, 40 W62839, W87028, AA561767, W85515, AA073509, AA451121, AA794167, AA033370, AA286505, AA717320, AA117408, AA790330, AA597109, AA575704, AA943112, AI043972, AA685076, AA140851, C71852, AA264719, D22471, T43986, H21346, H76570, C49373, F15475, D23138, T43257.

M55905, M81055, J05130, AL010165, AL010134, X66418, AL010207, Z69717, AL010138, AC001657, AF022173, AF022174, AF039052, U40800, L09233, X77508, M26585, Z92546, AE000633, X57142, AA082620, H11826, H19387, AA337227, AA853459, T25984, AA332592, H07001, AA156521, AA625245, AA773718, T17473, T66752, T80865,

5 AA485259, N28605, AA134157, AA161756, W53107, Al020103, AA930850, AA210237, AA125366, AA106479, W29507, Al019436, AA118935, AA522202, D19505, AA056913, H76074, H34871, AA979812, N97693, T76733, N81254, Al013495, AA051862, AA660836.

10 SEQ ID NO: 459

M55905, L42914, Z68010, X95001, AC003099, AC002432, U79202, U79222, AL008710, U03843, AC003664, U79210, U79197, U79198, U79206, U20539, Z49637, Z68105, U79205, U79230, U79221, U79195, AF040641, U79207, U79209, AC004407, Z35639, U79196, U79211, U58744, X66485, U79215, U79200, U79194, U79190, U79189, U79204, U79193, U67558, U79199, U79188, U79223, AA877904, AA127749, AA913955, AA804544, AA826095, T87869, T17472, AA156095, T66751, AA101130, AI027567, AA853458, H15839, H11749, AA783031, AA934605, H68911, T79599, AA496055, R46791, AA887922.

20 AA994515, AA229696, R20752, AA442710, AA883256, AA229604, AA229914, T70290, AA844103, AA771780, AA625121, T64331, AA360123, AA548642, AA348782, R866247, R66056, AA017432, N50126, H81869, N54973, N54960, N35840, H82168, H87197, T81480, R55663, AA617516, AA254205, AA882250, AA260460, H32730, T01832, C84870, L19204, C90683, AI007765, D33678, C91282, C94196, AA605383, AA495344, C92524, AA202521, AA78027, AA141650, AA786236, AA965144, AA10897, AA955198, AI00766, AA9802751.

25 AA784907, AA141659, AA786226, AA056914, AA140887, AA955188, AI007696, AA899376, AA819171, C90256, N97890, AA550098, AI013107, C94204, C90028, C93742, AA540790, AA859332, C91045, AA850342, C69263, AA787439, AA141018, AI008748, C94422, AA694968, C92357, AA802406, AA540719, C94391, C65147, C66511, AA141665, AA695145.

SEQ ID NO: 460

AF027302, AC000391, L04607, Y16595, Y16594, D84222, X73636, Y07826, L57504, Z54240, 3229043, AF015262, U59806, AE000732, U66677, C19005, R18615, R18617, F07369, R34905, F07368, T79967, Z45987, AA197172, H01848, N95669, AA128396, AA488130, AA618486, N50784, AA974394, R60973, R61758, T16566, H43185, AA528201, AA573889, AA926795, AA535806, R73032, AA557158, N26129, W16581, AA314079, R67879, AA135045, AA902734, R07590, H16141, AA133721, AA469203, AA144398, AA014138, AA92681, AA91439, AA01481, AA56532, A001489, AA912814, AA514438, AA014138, AA912814, AA57481, AA912814, AA57481, AA912814, AA136148, AA01811, AA56532, A001489, AA912814, AA51848, AA014138, AA0181148, AA181848, AA01481, AA56532, A001489, AA912814, AA57481, AA81488, AA01481, AA56532, A001489, AA912814, AA51848, AA01811488, AA018114

40 AA636681, AA921438, AA404181, AA656533, AI049168, AA218241, AA511948, AA108112, AA492849, AA756210, W42007, AA636285, AA624596, W36780, AA245034, AA207589, AA174611, AA689676, W83305, C77498, AA832881, AA636776, AA959560, AA672735, H31746, AI013494, C89840, C25665, D49064, AA951690.

45

30

AF027302, Z95113, U54796, AC002354, L00919, AJ002300, AJ002363, AC004752, AA237011, U66677, AA197173, AI032729, AA255836, AA085751, N66858, AA577295 AA548626, W90495, AI000514, AA682839, AA716406, R41589, W22243, W90494, T53078, AA188680, AA486482, AA454511, AA858021, AA480130, AA485752, C02340, AA490597.

- Z41599, AA128396, AA593341, AA961984, R49296, F04921, R39338, T35869, Z29925. N95669, AA609022, AA490792, F03609, AA303320, AA663990, AA593333, AA366356. AA197172, T34547, AA400758, H01848, W86360, AA335935, AA927626, H66597, W46194. AA780826, AA332344, R59347, W38723, W26692, AA285267, N29146, AA618477, AA961739, AA777793, AA878908, N31374, AA868690, AA109093, C77114, AA840315.
- 10 AA546776, AA930348, AA600513, AA207880, AA167977, AA032959, AA408896. AA674210, AA107897, W98977, AA286263, AA014214, AA542008, AA445835, AA066189, AA919445, AA409068, AA122622, W46048, AA815626, AA250553, AA563136, AA290523. AA108325, AA690964, AA600538, AI050353, AI020698, AA683894, C74097, T00284, AI012041. C13814, AA142305, C62713, C63247, D86665, AA949984, AA899054, AA875470,
 - AA899258, C67535, AA494899, AI045445, AA818814, C60666.

SEQ ID NO: 462

M37197, U19891, U19892, U94785, Z49073, AP000014, AC004543, AC000127, X04385 U59224, AC000123, U42597, U52853, U68299, U52854, M27431, X04146, M25830, Z79639. AA765892, N83654, AA223308, AA100044, AA484511, AA283049, AA634187, A1016630, AA596750, AA063964, AA518499, AA798334, AA390729, AA550369, C57461, C59926, AA720137, C84168, C59547, AA900640, C11302, C30475, C56164, C34709, C37786. AA680666, AA741977, D68525, AA532317, C66747, D22540, C13170, T26233, D41962. AA898310, AA945262, D22870, AA193900, H37703, D22772, N74796.

- M37197, U19891, U19892, U96076, AC002089, AC002425, Z99497, X06660, AF031078. AC000100, AL022393, L03398, U67513, M65062, Z36099, Z67756, Z36100, L27559. M14625, X13978, D16217, AL022159, Z93403, AC004257, AF030876, AC002540, U15177. AL022242, M86258, M58650, U29612, M86248, M59499, AD001502, X62658, M18832.
- Z81594, M33328, AF049132, N21190, AA830589, AA206030, N41412, AA927754. AA683615, AA830797, W45216, AA638996, AA223309, D25744, AA688007, AA453077, N27463, AA483722, AA885136, H82162, N77667, H97058, AA879468, AA625537. AA400667, AA361596, H97878, AA313982, AA902539, AA340994, AI034080, R60086. T10201, W73127, W39566, AA157717, AA173229, W02808, AA375528, AA984195,
- AA975541, AA158262, AA730142, AA902492, F07252, R54534, H08119, T41351. AA314891, AA349595, AA481164, AA486737, AA749052, H63007, AA947809, N23955 AA349619, AA746367, AA353291, AA213407, N30796, AA381509, AA664796, H15136. AI014347, AI032612, AA205950, AA578916, AA515634, AA062897, F08007, F12643. H66912, W81528, AA219009, AA077941, AA489971, AA635118, AA723690, H60661,
- 45 N44806, N72051, AA076645, AA351205, N31614, AA172288, AA757945, AA777815. F10598, T74533, D81766, AA078118, H04045, AA296601, AA279682, W23621, W00419,

AA651775, F10263, AI020934, AA244944, AA261519, AA645838, AA217444, D21457, AA545085, D18448, AA032924, AA198196, AA530381, W67020, AA274602, AA920929, AA268726, AI005976, AA268097, AA796184, AA109091, AA185019, C85754, W09723, C86225, AA623936, AA139293, AA123010, AA409795, AA050771, AA073953, AA543396, AA510284, AA162198, AA638596, C88310, AA422716, AA444686, AA208964, AA199030, AA666956, AA062351, AA759789, AA646855, AA177594, W85544, AA620178, D41819, AA651243, C71327, C46102, AA944451, AI008218, C68136, AA661400, W06567, AI045300, AI037840, AA957219, W68853, AA957759, AA900572, AI043289, AA957867, N97880, AA660603, AI030349, C57109, AA739808, AA080600, C31257, AA438549, C43603, C31455, AA550642, C37617, T76806, C67987, C68602, C83972, AA944483, AA958151, AA979396, C31807, Z14871, AF027374, AA890857, T42905, AA898178, C13393, AA040961, AA908081, AA816642, AA898294, AI001356, N97686, AA897846, C57445, AA753750, C91366, C67659, Z26699, C23297, C12350, AA950008, AI007383.

15 SEQ ID NO: 464

D63481, U82671, AB007139, Z99121, M17088, X05684, U12015, Z94043, U45325, M58445, H91413, Al017857, D52929, W68794, T05285, AA312234, D54423, W25176, AA041515, N92514, D53356, AA133348, AA043311, R68178, D55604, N40357, T06774, AA442403, AA354144, W68768, M85461, R32250, AA405340, R56166, AA022972, AA100506, H39046, H14054, AA330451, AA312129, W64983, AA275740, AA637972, AA003008, AA475189, AA797079, AA791561, AA472419, W85599, AA919229, AA254085, AA404015, W91239, AA204542, W36054, AA184146, W84303, AA289140, AA178813, AA221956, AA032597, AA002410, W30539, AA170110, AI013875, AA949343, AA941639, AA494730, AA849864, AA949592.

SEO ID NO: 465

D63481, U77572, D83412, D89216, X15723, Z98762, AE000151, U97396, X01074, U82664, U68536, U90743, AF016052, X66370, AA614415, AA954810, AA908313, AA506437, AA131747, W19261, AA679753, AA962100, AA514635, AA330885, AA465711, AA131835, AA355811, AA583508, A1016171, AA932378, AA593807, AA641850, AA953344, R54966, H21354, AA527556, AA659720, AA016013, AA161067, W23709, T35406, AA628013, W91980, AA729980, AA115409, A1028279, Z38258, AA442732, AA995805, T07914, W77923, AA282342, AA091752, AA736708, R73381, AA292109, T97386, AA587909, AA622354, AA946816, W88796, AA040910, AJ003612, AA203494, AA877552, AA983240, W72744, AA448970, AA292089, AA707062, N86057, AA479577, AA048686, AA792452, W84994, AA237631, AA048691, AA020086, W78466, W719466, AA792423, AA473361,

6 W64994, AA237631, AA048691, AA020086, W78466, W71946, AA792423, AA473361, AA199995, AA795909, AA612375, AA415416, W34713, C88553, AA943112, AI043972, AA685076, C71852, AA140851, T43986, D23138, T43257, D22471, H76570, C49373, F15475, AA264719.

30

SEQ ID NO: 466

M55643, M58603, L26267, S89033, S66656, M57999, L28117, L28118, Z47740, Z47737, Z47738, Z47739, Z47736, Z47735, Z47741, AF000241, M86930, D13719, L09064, AC004783, S X61123, Z84479, Z46266, D16367, U00111, Z70286, AC003663, S76638, X61498, AE001057, J05394, U63737, X85237, AC000721, AC002503, U09609, U91616, M91436, M24354, AF014008, X71125, X78454, AL021837, U60317, U39743, L13466, AA085529, W94220, T47296, W56849, T53902, N41629, N54459, AA480154, AA731956, F08166, N84413, T05322, AA331545, AA164749, T08600, F06451, W25646, W63975, AA276822, AA596791, AA497639, AA981181, AA675005, AA061257, AI047975, AA832884, AA272062, AA509818, AA874464, W87199, AA093829, W70695, AA009052, AA124602, AA186000, AA567365, AA202061, A1044448, AA963796, AA696342, D33201, N96427, C82917, AA867896, AA867910, AA660206, Z47687, Z26818, AA802558, C83773, AA867941, C54606, C54343, AA556084, AA867919, Z18207, AA966839.

SEQ ID NO: 467

M58603, M55643, L26267, Z47737, S66656, S89033, M57999, L28117, Z47738, L28118, 247740, Z47739, Z47736, Z47735, M86930, D13719, AF000241, L09064, U00111, Z70286, Z46266, X61123, Z84479, D16367, U60317, AE001057, X61498, AL021837, U63737, S76638, U09609, X78454, M91436, U39743, M24354, AF014008, AA085529, W56849, AA731956, N54459, AA480154, T05322, H59244, AA116033, T31186, AA620651, H59290, AA383275, D61080, W63975, AA981181, AA963796, C54343, Z26818, AA802558, C54606, Z47687, Z18207, A1044448, AA966839, D33201, N96427, AA696342.

- Z47744, M58603, M55643, D17144, S89033, S66656, M57999, L26267, L28117, L28118,
 Z47743, D13719, M86930, AF000241, Z49288, AC000117, X06285, U04164, M35323,
 L26487, U65146, X89493, AF076275, AA604987, W60987, AA854753, AA744551,
 AA831993, AA451716, N29625, AA258085, AA134528, AA134618, AA213622, H49196,
 R26146, AA213748, AA932631, W92694, AA256615, AA688426, H49385, T77886, R30924,
 T86845, R26360, AA576864, T53788, AA098834, H00310, H44239, H00357, Z36738,
 W72926, H44238, AA534057, W92693, W60355, T86858, R30875, AA921305, T77709,
 C18968, AA541794, AA625308, AA810086, D79816, AA083182, AA614109, AA991313,
 AA364984, AA687453, AA490741, AI041182, R94501, AA083294, AA557881, AA868298.
- AA878456, R48891, AA283812, AA283813, AA908775, N20359, AA635369, AA834129,

 40 AA873006, W44235, AA241119, AA120684, AA823082, AA120663, AA111026, AA739345,
 AA198339, W71113, AA231564, AA414667, AA220845, AA606399, A1020169, A1048311,
 AA170325, AA414143, AA290108, AA547154, AA438002, AA388801, AA469620,
 AA547484, AA189513, AA413923, AA062319, AA681268, AA414697, AA717322,
 AA681509, W34058, AA290098, AA058216, AA087236, AA684076, A1020159, AA9399933.
- 45 AA119778, AA178268, AA414353, AA210039, AA145095, C85301, AA858801, AI011845, C91044, C94358, AA875000, N82720, AA799993, H35157.

SEO ID NO: 469

- Z47744, M58603, M55643, D17144, S66656, S89033, M57999, L26267, L28117, L28118, S Y15994, Z49288, AC000117, U65146, X89493, AF076275, U04164, M35323, X06285, L26487, AA604987, W60987, AA744551, AA854753, AA451716, AA831993, N29625, AA134528, H49196, AA213622, R26146, AA258085, AA932631, W92694, AA213748, AA256615, AA688426, AA134618, H49385, R30924, T77886, R26360, T86845, T53788, AA576864, H00310, H44239, H44238, W72926, AA098834, Z36738, AA534057, W60355,
- 10 H00357, W92693, T86858, R30875, AA921305, AA541794, AA780367, T86654, AA625308, AA577881, AA687453, A1041182, AA364984, AA868298, AA878456, R94501, AA283813, AA725586, AA908775, R48891, AA083294, AA834129, N20359, AA873006, D79816, AA614109, AA635369, AA810086, AA490741, AA991313, AA283812, AA0838182, AA120684, AA241119, W44235, AA823082, AA120663, AA739345, W71113, AI020169,
- 15 AA220845, AA606399, AA231564, AA414667, AA111026, AA858801, AI011845, C94358, N82720, H35157, AA799993, C91044, AA875000.

SEQ ID NO: 470

20

M58603, M55643, L26267, S89033, S66656, M57999, L28117, L28118, Z47740, Z47738, Z47739, Z47741, AF000241, M86930, D13719, L09064, AC004783, Z46266, Z84479, Z97876, D16367, U00111, J05394, U09609, X85237, M91436, U91616, AC002503, S76638, AC000721, X61498, AC004997, AE001057, L13466, M24354, X71125, AA085529, W94220, T47296, T53902, N41629, W25646, N84413, AA164749, F08166, F06451, T08600, AA331545, AA507472, AA701348, AA767883, AA648492, H17207, H59290, AA558376, AA677464, R80854, AA206682, D61080, R34891, H59244, W60568, AA383275, AA357089, U66687, AA987746, H60893, AA420654, W63975, AA276822, AA596791, AA497639, AI047975, AA675005, AA832884, AA124602, AA003829, AA874464, AA272062, W87199, AA509818, AA009052, AA186000, W70695, AA567365, AA202061, N96427, AA867896, AA660206, AA867910, C54343, C82917, Z47687, AA867919, C54606, AA556084, Z18207, C83773, AA867941, A1044448, D33201.

35 SEO ID NO: 471

Z47744, M58603, M55643, D17144, S89033, S66656, M57999, L26267, L28117, L28118, Z47743, M86930, D13719, AF000241, Z49288, AC000117, U65146, X89493, U04164, M35323, X06285, L26487, AF076275, AA604987, W60987, AA258085, AA744551,

- 40 AA854753, AA831993, AA451716, N29625, AA134618, H49196, AA134528, AA213622, R26146, AA213748, AA932631, W92694, AA256615, AA688426, H49385, R30924, R26360, T77886, T86845, AA098834, AA576864, T53788, H00310, H00357, H44239, Z36738, H44238, W72926, W92693, W60355, AA534057, T86858, C18968, R30875, T77709, AA921305, AA780367, AA625308, AA541794, AA577881, AA364984, AI041182, R94501, AA283813, AA868298, R48891, AA878456, AA908775, N20359, AA083294, D79816, AA614109,
- 45 AA868298, R48891, AA878456, AA908775, N20359, AA083294, D79816, AA614109, AA834129, AA490741, AA873006, AA635369, AA283812, AA810086, AA991313,

AA083182, AA687453, AA241119, AA823082, AA120684, AA120663, W44235, AA220845, W71113, AI020169, AA739345, AA414667, AA198339, AA231564, AA111026, AA606399, AA858801, AI011845, H35157, AA875000, N82720, AA799993, C91044, C94358.

SEQ ID NO: 472

AA085529, W56849, W94220, AA480154, N54459, AA731956, T05322, H59244, H59290, AA383275, D61080, T31186, AA116033, AA620651, AA085529, W56849, W94220, AA480154, N54459, AA731956, T05322, H59244, H59290, AA383275, D61080, T31186, AA116033, AA620651, W63975, AA981181, AA061257, Z47687, Z18207, D33201, A1044448, D68391, AA696342, AA9663796, C54606, AA802558, Z26818, AA966839, C54343, N96427.

15 SEQ ID NO: 473

Z47744, M58603, M55643, D17144, S66656, M57999, S89033, L26267, L28117, L28118, Z49288, AC000117, L26487, U65146, X89493, AF076275, U04164, M55323, X06285, AF019074, AB009464, AA604987, W60987, AA744551, AA854753, AA831993, AA451716, N29625, AA134528, AA258085, H49196, AA213622, R26146, AA134618, AA932631, W92694, AA256615, AA213748, AA688426, H49385, R30924, T77886, R26360, T86845, T53788, H00310, AA576864, AA098834, H44239, W72926, H44238, H00357, Z36738, AA534057, W92693, W60355, T86858, R30875, AA921305, AA780367, AA625308, AA541794, AA364984, AA490741, AA687453, AA283813, AA577881, AA083294, AA878456, R94501, R48891, AA908775, H10173, AA834129, AA868298, T75200, AA614109, AA635369, A104182, AA873006, N20359, D79816, AA083182, AA283812, AA810086, AA991313, AA402834, AA241119, AA120684, W44235, AA823082, AA120663, A1020169, W71113, AA111026, AA220845, AA606399, AA188339, AA231564, AA414667, AA858801, A1011845, C94358, A1044858, AA817922, AA875000, AA817920, AA799993, H35157, A1007661, N82720, AA799993, AA784644, C91044, AA851877, AA891276.

- 35 U23731, AL021408, Z81008, AF000119, AF032896, AB006706, AE000562, Z72884, U07562, U38538, L20297, AC000108, AA224461, AA206137, AA156076, AA311528, AA224287, AA130324, AA158181, AA338632, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, AA356336, AA336684, AA157406, N84223, H14048, H70100, AA621821, AA655041, AA511182, AA098490, AA795478, AA003828, AA982787, AA990002.
- 40 AA049380, AA265250, AA518486, W53950, AA059526, AA530519, AA475369, AA544829, W98895, C19435, AA801990, T24344, AA802780, AA802033, C93914, C84010, AA787755, C91549, AA532229, C83842, C90225, C89939, C90623, C93063, C94006, C90912, AA608487, C89776, AA998709, AA966628, C91481, AA966780, T88561, AA950350, C92923, AA660951, AA850534, Z25995, AA202149, C84032.

SEO ID NO: 475

D84484, Z68285, Z48230, M36868, X93204, X75356, Z59528, AL022401, AF036688, AA224462, W68083, AA155991, AA206138, AA042859, AA845618, AA846689, AA923669,

- 5 AA156359, AA180086, AA130325, AA722400, N24090, AA535987, AA157528, AA157248, N94103, AA622128, AA588309, AA632045, AA125745, AA983663, AA916531, AA682611, W73348, AA136323, C74980, AA620380, AA163676, H18030, AA044410, D29077, N54857, H62216, N69283, AA039772, AA494394, R97615, R52831, AA524141, AA329465, T47023, R66459, AA136236, N53084, AA704526, AA807528, AA806739, H71338, W73468, T53532,
 10 Z39137, H78375, H16390, AA125866, H62313, AA136290, F04995, AA626812, AA224185,
- Z39137, H78375, H1639'0, AA128060, H62313, AA136290, F04995, AA62812, AA22418:
 H99265, F04133, N72633, AA688174, T32098, W88884, H26244, AA025451, T47022,
 AA489215, AA204982, T53531, AA779662, AA541312, AA025965, H71390, AA770035,
 T31901, H95364, D57620, D57777, C16474, T53629, T53628, AA771817, AA229797,
 N47003, AA112758, AA985365, AA737183, C78301, AA738630, W08709, AA000380,
 AA183515, AA186150, C85200, W82711, AA178363, AA472734, AA120443, AA152752.
- AA067726, AA589139, AA617490, AA560182, AA137437, AA103614, AA052582, AA116656, AA791261, AA073097, AA259443, AA896587, AA795882, AA914479, AA646014, AA509451, AA033329, AA175895, AA986715, AA673448, AA717649, AA544011, AA389170, AA764535, AA855220, AA922032, AA987066, AA924642, D85577, AA925459, AA892107, AI012713, A1007691, H31397, AA996903, H32650, AA957220, D39275, C82794, C83650, C10185, D72728, D71532, D69161, D65762, T02162, AA950618, M79950, R05112, C36830, C10223, C25346, D65709, M80069, M79765, D72749, D70625, R03849, D72636, M80068, AA933355, D72047, M79981, D68900, AA786772, D71395, AA627005, M79695, R04619, AA9497575, AA786095, D72004, D69424, AA942258, R62015, D72003, AA66114, D66658, D66742, P04006, M80102, T14566, AA605500, AA841247
- D72699, AA661114, D66659, D66743, R04006, M89127, T14566, AA495500, AA841347, A1018906, A1018907, A1018971, A1018983, A1018988, C08459, AA597677, AA550586, U92770, AF051113, AA739994, AA819088, A1018933, A1018997, C45151, AA840843, A1018970, T01777, T14365, AA525607, C30437, C34598, C54120, C555452, AA682177, AA728096, A1018932, AA528928, A1018973, U92773, C49170, AA840851, AA917246,
 - 0 AA931026, AA999328, AI018982, AA517952.

SEO ID NO: 476

AA846689, AA845618, AA923669, W68083, AA224462, AA156359, AA206138, AA535987, AA155931, AA722400, AA157528, AA157248, AA983663, AA622128, AA588309, AA632045, AA682611, AA130325, AA620380, N94103, AA916531, W73348, C74980, AA807528, AA806739, N24090, AA180086, AA044410, N54857, AA042859, T47023, D29077, AA494394, AA125745, AA524141, AA489215, AA688174, AA704526, H18030, R52831, AA541312, T53532, H71338, R66459, AA039772, H78375, AA329465, AA025451, 40 N53084, H16390, AA136323, AA136376, N69283.

SEQ ID NO: 477

45 U23731, Z81008, AF036577, AC000108, AF032896, AB006706, Z72884, AE000562, U38538, U07562, L20297, AF000119, AA224461, AA206137, AA156076, AA311528, AA224287.

AA130324, AA158181, AA338632, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, AA356336, AA336684, AA157406, N84223, H25390, T34532, AA362575, AA352967, H70100, AA621821, AA310538, H14048, AA655041, AA511182, AA098490, AA795478, AA530519, W53950, AA982787, AA059526, W98895, AA049380, AA003828, AA475369, AA544829, AA990002, AA265250, AA518486, C19435, H34672, AA999071.

SEQ ID NO: 478

10

DSHEESES

AA801990, AA802780, T24344, W06542.

D84484, AL023534, AC003052, AF026211, D90910, U23517, Z82287, AB010692, Z97053, U52112, Z68342, X03012, AC004740, W88792, N51697, AA535621, AA629359, AA580794, AA804326, AA917940, AA864355, AA862797, AA906006, R40383, AA371044, AA013401, AA782650, AA224185, AA770035, AA626812, H71390, H25390, AA779662, W73468,

- 15 R97615, AA309562, AA129699, AA128863, T79976, F08443, R20194, R56563, F06396, AA279039, AA485328, H05851, AA809792, AA863400, AA515855, N35180, AA255896, AA324622, AA607994, AA710794, AA929608, AA611806, AA088978, AA168454, C85084, AA266859, AA450504, AA137437, AA052582, AA589139, AA103614, AA560854, AA617490, AA116656, AA008360, AA120443, AA152752, AA000380, AA571466,
- 20 AA198469, AA797491, AA655766, AA546928, AA510411, W42224, AA944833, AI009004, AA955691, AA996686, C83650, C82794, C65116, AA735461, T00363, H33817, AA538872, C06579, AA536338, T23136, C06991, C82752, C83608.

25 SEQ ID NO: 479

U23731, Z81008, L20297, U07562, Z72884, U38538, AB006706, AF000119, AC000108, AE000562, AA224461, AA206137, AA156076, AA311528, AA224287, AA130324, AA338632, AA158181, AA580830, N89422, AA227003, AA355760, AA367737, AA205217, AA356336, AA336684, AA157406, N84223, H70100, AA621821, H14048, AA655041, AA511182, AA098490, AA795478, AA544829, AA265250, AA475369, AA982787, AA990002, C19435, T24344, C89776, AA787755, AA802033, AA998709, C92923, AA850534, C91481, AA966628, C84032, C90912, C91549, C93063, AA532229, C89939, AA202149, T88561, Z25995, C94006, C84010, AA660951, AA966780, AA698487, C83842,

SEQ ID NO: 480

35 C93914, C90623, C90225, AA950350.

- 40 D84484, AL023534, X03012, AC004740, U23517, Z97053, Z82287, AF026211, Z68342, D90910, AB010692, AC003052, W88792, N51697, AA629359, AA580794, AA535621, AA804326, AA917940, AA864355, AA862797, AA906006, R40383, AA371044, AA013401, AA782650, AA224185, H25390, AA129699, W88884, AA128863, F08443, R201944, T79976, AA482484, R56563, AA279039, F06396, AA255896, AA324622, AA384509, AA809792,
- 45 H05851, AA863400, AA515855, N35180, AA607994, AA710794, AA611806, AA929608, AA088978, AA168454, AA266859, C85084, AA000380, AA450504, AA198469, AA797491, AA681253, AA510411, AA546928, W42224, AA955691, AA944833, AI009004, AA996686, C65116, AA735461, T00363, AA536338, AA952087, C69126, AA538872, T23136, C65558, C12294, C82752, C83608, C06991, C06579.

SEQ ID NO: 481

X83973, AC004585, M92280, U32712, U61958, L25598, D63880, M31229, AC004002, 5 X67320, U46596, X60325, U73644, AC002396, X89870, U72499, R62169, AA206573, H04110, AA135261, AA025528, AA218774, U69197, T31173, H17179, T31172, W28253, T74327, R95466, T06248, AA191685, AA209495, AA285302, T11250, T10730, AA877091, T30286, AA813637, AA700898, AA918411, AA890493, U25927, AA156216, AA240112, AA270608, AA896810, AA153656, AA106767, AA003959, AA562089, AA104976, W82776, AA008221, A1007191, AA797994, AA396048, AA003400, A1034962, AA597427.

SEQ ID NO: 482

X83973, AC004585, D63880, M31229, L25598, X67320, U32712, AC004002, U46596, X89870, AA218774, AA135261, U69197, T31173, T31172, H17179, AA025528, W28253, T74327, R95466, T06248, AA191685, AA209495, AA285302, H04110, R62169, AA813637, AA700898, AA890493, AA918411, U25927, AA156216, AA459760, D54000, N89478, Z44636, R60410, F08390, N58115, AA431856, W07774, AA114203, R20232, D52808, Z43059, Z43991, AA311575, AA405526, AA459219, H48630, N31359, F00826, AA305192, AA497122, AA448367, AA206301, T74440, R19619, H07059, F12465, W47095, AA488227, W31424, AA740349, W47600, AA240112, AA270608, AA153656, AA562089, W82776, AA104976, AA003400, Al007191, AA396048, AA797994, AA008221, A1013905, AA943884.

H34847, AA955449, AA951973, AA818406, C19895, F14612, C35942, C27959, C83493, C82637, AA848886, T23112, AA997204, C74327, AA180645, C07631, R03468, AI013797.

SEQ ID NO: 483

- AC004100, U69197, AA889669, AA609322, AA846829, AA157806, AA910279, H16250, AA191622, AA594141, AA034036, H11397, N45294, AA907298, N71642, AI017580, N22707, T15527, T89105, AA858303, AA931425, AA847184, AA658226, AA903241, AA160287, AA074277, AA610333, N51259, AA427905, AA541311, H96787, AA669068, AA206434, F10050, AA135198, AA135111, AA207148, AA135108, AA904093, AA747271, N67513, N66837, AA593048, Z41528, AA043331, T10553, AA578579, T11277, D20243, AA620459, AA741223, T94064, AA886271, AA704085, AA588415, AA043332, AA613110, R23931, AA090084, R00190, N31181, AA011069, AA283910, AA011068, D12113, AA281890, AA262686, T51762, AA020898, AA479483, AA479486, N98740, AA469362, AA599610, AA122290, AA083241, AA344624, AA980870, AA189964, AA924040, AA957243,
- 40 AA494753, AA041007, C94155, F15350, AA395308, C23188, AA944028, AI029279, AA924029, AA585835, N65610.

SEQ ID NO: 484

45

AC004782, U36309, AB004665, AB004664, AF000266, AL008987, X82329, Z71533, X96722, U03376, L76927, Z81369, AA307147, W52616, R60274, H15631, AA192581, H17000, N70985, AA682302, AA229888, AA584468, AA188677, AA077563, AA632513, W52931, AA227128, R15324, AA073776, AA120131, AA543131, W75369, AA672153, AA797354.

AA171349, AA636861, AA107512, AA611943, AA529574, AA073101, C89406, C88751, AA155335, AA276545, AA794735, W91498, W41207, AA756021, AA396808, AA058091, AA920575, AA275684, AA198148, AI011366, AA433363, AA231846, W00769, C48684, T44800, C25954, N96608, Z37612, T22534, H34007, C62867, T88218, AA253580, AA067527, AA390238, T88530, C93064, N38560, C71320, D37215, T44514, AA224662, T42682.

SEQ ID NO: 485

10 U96150, AC004770, AJ000382, U43414, AE000793, D11352, Y15994, D45210, U56862, X94354, L36316, Z81057, D25216, AA416742, H17001, R60782, H15571, AA872017, D78731, AA872016, AA533831, AA486536, AA112946, AA458173, AA985699, AA438072, AA799270, AA073146, AA921642, AA901077, H32499, AA542582, N96729, D22134, Z26528, AA395112, AA586078, D41457, AA193962, AA915808, AA193969.

SEQ ID NO: 486

15

U48288, AL021447, L22355, AC002463, AB015478, Z46937, J00778, AC001226, AC004253, 20 U24122, D90905, U61944, AL021066, AC003103, Y14023, U81834, AL023713, AA100515, AA836885, AA640759, AA773258, R38812, N27694, F04149, AI032861, AA019351, Z40684, H16394, AA011058, AA256783, AA722016, H84335, AA813571, H05979, AA857838, AA019363, R85734, H97233, N26688, AA483155, R42174, H84905, AA903721, AA290683, AA056241, AA018567, AA885127, AA190265, AA276751, AA273801, AA153214, AI020109, AA119459, AA999641, AA509268, AA109389, AA161638, AA508962, AA123529, C91548, D41056, C92760, D41219, AA161664, C25804, C23834, AA114518, D41055, R90293, AA395672, AA753858, AA917236, C41854, C64350, H36059, T75869, AA550210, C92570,

30 SEQ ID NO: 487

AC002073, AC002997, U82083, Z82217, AC002367, AC003080, U82213, AC004776, AB000877, AC002375, AB000882, AF029061, AC005201, L43411, Z93023, AC002496, AC002057, AC003667, U03115, AC003101, U66060, M96851, U96629, AC003957, AC000118, AF047825, Z70280, AP000021, Z92844, AC004112, AF030453, M63796, U14574, AC000122, AL008631, U14573, AL008627, AP000015, AC002133, AC004598, Z68273, AC004778, X54486, AC002454, Z68192, AF039907, AL022158, AC005257, AL031005, Z97989, AF001550, AC002036, AC003098, AC005175, AF003529, AC003690, AF015725, AC004790, Z98750, AC000378, AC003044, AC004593, Z79996, AC002072, Z81315,

- 40 AC003657, Z82097, AL008635, AP000036, Z82246, AL008630, AL022322, AC002456, AC002476, AF053356, L47234, AL021393, AC004262, AC004692, U91322, U57833, AC004552, AP000038, AC004752, U29953, AL008720, AC004076, U61224, AF064863, AF070718, AC003037, AC002401, L78833, AC00417, U61238, AC004074, Z68756, AD000812, AC004785, D00591, AA837616, AA251226, AA835824, AA748600, AA309354,
- 45 T47389, AA084609, R98218, AA225273, AA451901, H29914, AA563770, AA601237, AA599063, AA492114, AA502098, AA410788, AA228778, AA767297, AA594043, A1049630, AA664126, AA573213, AA058768, AA297666, AA176604, W02749, AA452887, AAA581247, AA621381, AA503298, AA550850, AA515728, AA492105, AA405726, AA482928, AA877992, AA299589, AA525753, AA486277, AA662590, AA610381, AA984187,

AA626040, AA602906, AA622801, AA284247, AI049676, R64617, AA507822, AA984920, AA837686, AA846923, AA878431, AA302661, AA593471, H43771, AA995373, F13749, H63066, AA838091, AA904211, AA666295, AA251356, AA541532, N64587, AA077667, AA581895, AA668915, T93109, AA650365, AA714999, AA668896, AA018105, AA302660,

- 5 AA946848, T09219, AA670132, AA714605, AA586667, AA548610, AA365586, AA516045, T50061, H64579, AA553409, AA582554, N73060, AA890060, H84003, AA772704, AA584765, T71936, F01666, AA502991, AA669054, AA487569, F03672, AA678950, AA676971, AA823826, C88111, W64166, AA863851, AA415875, AA501297, AA517646, AA516629, AA516955, AA517461, AA501217, AA261001, C88193, AA474026, W61986.
- 10 W51648, W64884, AA501128, C87864, AI042727, AA080273, W62276, W71684, W71517, C87922, AA465901, AI046782, C86532, AA867834, AI006950, AA920903, AA792326, AA260746, W40894, AA237411, AA462161, AA501226, C87438, AA476035, AA645522, AA407778, AA607939, W13408, W77222, AA518813, W64881, AA087147, W62377, AA683837, AA986140, AA177354, AA475815, W12097, C76778, C76558, AA152830,
- AA684275, C76554, AA387138, AA671993, AA821458, AA921291, AA200956, AA619556, AA863761, AA270734, AA065758, AA880006, C76781, AA915628, W91721, A1042721, W62885, AA710415, AA856419, W41419, AA116250, AA501262, AA071830, AA215022, AA624943, AA177982, AA275969, AA738645, AA794525, AI036873, AA689887, R75183, AA177980, AA122637, AA268771, AA562623, AA138821, A1044039, Z69957, AA550283, H39426, W06387, H39330, W06750, AF064463, AA107123, AA799804, AA850419,
- AA923995, AA799820, H39389, H39328, AA996668, AA963620, AI008240, AA859703, H39321, H32137, AA997451, AA701791, D85580, AA893225, AA819889, AA943496, AA997061, AI030545, AA892475, AA956017, AA943260, AA891543, D35620, AA056877, C61478, C70634, H34360, AI028846, C06795, C23765, AA893817, C71265, AA943777, A1010688, D26633, AI045509, AA859161, AA538694, AA817007, AA819620, AI09750, AI03243, AA899185, AI09231, AA90123, AA8117007, AA819620, AI09750, AI03243, AA899185, AI09231, AA90123, AA8117007, AA819620, AI09750, AI03243, AA899185, AI09231, AA90123, AA8117007, AA819620, AI09750, AI03243, AA899185, AI09751, AA90123, AA8117007, AA819620, AI09750, AI09750,
- AI013243, AA899195, AI008251, AA901012, AA819167, AA859997, AI029425, AA893903, AA945963, AA850360, AA943529, H33833, AA532283, AA851329, AA964505, AA943958, AA801439, H39351, AA925077, AA955715, AA956915, AA944747, H31386, AA550467, AA800630, AA800631, AA818477, AI009861.

SEQ ID NO: 488

30

X79828, U29498, X60156, M27878, AL022165, U28322, L32162, D31763, D89928, U28687, U28687, X71623, L76568, X92715, Z68344, L08442, AC004262, U56732, AF028840, AF027513, Y00850, U66561, U46190, U09366, AF003540, Z30174, AC000378, AL021918, X52332, U47104, D50419, X60155, M61870, AC003002, X60152, AC004104, L33260, L77247, Z96240, Z93096, U80440, M29580, AC000113, D10632, X60154, X78927, U37263, U46188, L75847, L81686, AF011573, M67509, U46187, U46189, AC003006, AC003673.

- AF052054, Y07759, AC004696, AC004017, AC003005, U90932, U90935, U46186, Z21707, L81865, U37251, U29503, AC003682, AA393862, AA903775, AA332448, H30708, AA333524, AA167752, AA083688, AA628082, AA534387, AA651748, AA295628, N25521, AA412491, AA196895, AA481082, W39561, AA312592, AI016262, AA448488, H19015, AA446808, AA412659, AA171328, AA170968, AA517408, W97817, AA427249, AA727092,
- 45 Al050494, Al036616, Al048993, AA881067, AA980285, AA051182, AA510419, AA896560, Al046649, AA674333, AA956996, AA999114, AA799834, F23057, AA945558, T42664, T41769, AA817734, C08312, AA417507, C36594, C39191, C57208, C07961, AA542664, D72647, AA8892106, C07405, AA849949.

DEDZUU

SEQ ID NO: 489

AC004587, Z95979, AC004791, Z93016, AC003108, Y10196, AC004149, AC002350, AC004645, AC003101, AA771779, N36929, AA342301, AA091511, T08758, AI042519,

5 AI003444, AA501297, W61986, W51648, C87922, C88111, C86532, AA823826, AA516629, AA517646, AA516955, AA550283, AI008183, AA894110, H39389, H39328, W06387, AA963624, AA874831, AA942712, AI008350, AA859194, D86779.

10 SEO ID NO: 490

X83973, AC004585, U32712, AC004002, X67320, M31229, M92280, L25598, D63880, X60325, X89870, AC002396, U46596, U72499, AA135261, AA025528, H04110, R62169, AA206573, AA191685, AA209495, AA218774, T31173, H17179, U69197, T74327,

AA813637, AA700898, W28253, AA918411, U25927, AA890493, AA156216, N31359, AA305192, T74440, Z44636, AA431856, AA497122, R19619, W31424, AI038357, W47095, H48630, W47600, AA740349, N89478, D54000, Z43059, AA114203, H92941, Z43991, F12465, W07774, AA488227, R60410, AA206301, AA448367, H07059, N58115, AA311575, AA405526, D52808, F08390, AA459219, R20232, N72283, F00826, AA270608, AA896810, AA240112, AA153656, W82776, AA104976, AA562089, AA396048, AI007191, AA97994, AI034962, C50857, AA901553, D75642, C49624, C50401, AA950450, AA940795, T00343.

AA951973, C35942, C45911, C83493, C82637, AA951458, M80085.

25 SEQ ID NO: 491

AF003386, AC004100, AA594141, U69197, AA889669, AA157806, AA846829, AA609322, N45294, AA191622, H16250, AA910279, AA034036, H11397, AI017580, AA907298, T15527, N71642, N22707, AA858303, AA931425, T89105, AA847184, AA658226, AA903241, AA160287, AA074277, N51259, AA610333, AA427905, AA541311, H96787, AA206434.

- AA(10126), AA(1717), N3123), AA(10333, AA(27903), AA(31311, H96787, AA(206434, AA(69068, AA(135198, AA(135111, AA(207148, F10050, AA(135106, N66837, N67513, AA(747271, AA(904093), AA(593048, Z41528, AA(578579, AA(943331, T10553, T11277, D20243, T94064, AA(20459, AA(741223, AA(686271, AA(704085, AA(688415, AA(9483332, AA(13110, R23931, AA(900084, R00190, N31181, AA(216135, D12113, AA(281890, AA(11069, AA(283910, AA(11068, AA(262686, H38971, AA(344624, AA(677326, H4(2125, AA(136266), AA(1362666), AA(136266), AA(1362666), AA(136266), AA(1362666), AA(1362666), AA(1362666), AA(1362666), AA(1362666), AA(1362666), AA(1362666), AA(1362666), AA(1362666),
- R25075, AA527445, AA846250, C00804, T51762, AA599610, T25862, AA4697526, AA479486, AA991236, Al023397, AA020898, AA122290, AA161131, R95433, AA479483, AA677307, H23454, AA083241, Al032960, AA980870, AA667323, C85792, AA189964, AA763659, W64912, AA924040, AA957243, C57088, D65799, AA924029, AA494753,
- 40 C53054, C94155, F15350, C56060, AA859150, AI045999, C23188, AI029279, AA891808, N65610, AA391396, AA892687, AA585835, AA395308, C68374, C68890, AA944028.

SEQ ID NO: 492

45

X83973, AC004002, U32712, U61958, M92280, L25598, X60325, AC002396, U72499, X89870, R62169, AA206573, H04110, AA135261, AA025528, AA191685, AA209495, T11250, T10730, AA877091, T30286, AA890493, AA918411, AA156216, W31424, AA311575, AA896810, AA270608, AA003959, AA106767, W82776, AA562089, AA104976,

AI007191, AA396048, AA597427, AI034962.

SEQ ID NO: 493

5

D50310, Z71630, U05954, AF051690, Z71629, Z21504, X12448, X64712, AF069716, U73107, M83179, X55390, Z38015, L33838, Z47069, AC005149, AA703243, AI018633, AA573290, AA910671, AA593789, AA205570, AA629751, AA664102, AA846727, AA218918, AA434521, AA664175, AA595249, AA053839, AA215707, AA521260, AA496420.

- AA694361, AA053834, AA188001, AA443651, N30602, AA5251250, AA499420,
 AA604363, AA053834, AA188001, AA443651, N30602, AA525154, AA869591, AA273535,
 AA870443, AA869420, AA636862, W41289, W53234, AA615508, W71646, AA879848,
 AA794632, AA260499, AI050464, AA050559, AA682145, AA270786, AA833452, W83977,
 W62085, AA657275, AA032813, AA670695, AA237743, AA286476, AA562003, AI046124,
 R47167, AA685568, AA567879, H33765, AA686492, AA202312, AA264735, AA441475,
 H35716, C26045, AI001296, AA538750, AA246371, AA391338, AA440321, AA567072.
 - SEO ID NO: 494

R04548.

20

25

S45828, X15209, X15750, X62880, M91452, M91451, AC004356, Z60755, Z75208, AA830609, AA379393, W92192, N26739, AA826782, AA513371, AA843735, AA312811, AA886891, AI051222, AA083024, AA678449, AA5838756, AA081892, AA993208, AA872909, N75138, H68272, AA183474, AA590863, AA422807, AA824874, D34645.

M77197, AB006701, U43491, Z74911, Z73899, U50068, Z50859, Z74912, U41765, M83665,

SEQ ID NO: 495

AF044387, AF044392, AB013389, U69551, Z49912, AL021766, AB009055, U00040, AB004538, Z69660, AF041426, X62534, AF007544, AF044388, AC004080, AA425317, AA683559, N59179, AA496964, AA421774, AA463691, AA732495, AA425476, AA253038, AA253092, AA662003, AA490562, N90356, AA551630, AA830448, R98286, AA431379, AA091995, AA031701, AA043761, R96229, AA166980, R43145, R56119, A1003139, AA191594, AA346169, AA813494, R20553, N54035, AA719828, H81379, N64011, W86389, AA887501, AA779217, F09611, AA973573, H99275, N39567, AA219621, N50991,

AA887501, AA779217, F09611, AA973573, H99275, N39567, AA219621, N50991, AA992514, H05031, C86289, AA958839, AA666873, AA549530, AA717257, AA543538, D18482, AA466518, AA268389, AA423231, AA920513, AA821455, AA168433, AA067899, AA266880, AA914284, AA944030, AA531990, T37874, AA849553, C90208, C54137, AI011413, D34422, D43403, C94424, C90924, C25657, AI008776, C93862, C92799.

45

SEO ID NO: 496

U44731, M81128, M55542, M55543, M55544, M63961, M80367, X92112, U73641, AC002528, U80955, M21494, AA317362, AA564268, N88929, AA158924, W30064

AA305909, AA100063, AA354725, AA424070, AA296543, AA044192, AA873192, H30148. AA311108, AA020729, AA001029, AA346038, AA181375, AA180017, F19272, AA011006. AA178935, AA216124, AA211749, F22790, AA179247, AA176349, AA100433, F22155. F19355, F18872, AA977460, F22796, F20284, F20425, AA878690, AA856166, AA921455,

5 AA122936, AA880099, AA240404, AA709608, AA107742, AA218234, AA061741. AA222398, AA217704, AA990499, AA217738, AA717634, AA823282, AA204474, AA288216, AA098568, AA538440, AA870562, W71884, AA098205, AA915500, AA008041. AA008046, AA222205, AA880120, AA174774, AA822137, AA589084, F14828, F14838, AI011419, C41769, T09530, C60180, D66790, D66581, C71757, C28722, D65511, D65910,

D66300, C49281, D65830, C29182, AA246802, L38527, C10192.

SEQ ID NO: 497

U44731, M81128, M55543, M63961, M55544, AC002528, Z78141, J02940, U66047, M80367, M94362, X97986, U66083, M22403, AL022117, M55542, U12313, U96409, N88929. AA564268, AA317362, AA164464, AA471169, AA044192, AA044017, AA775579, AI041248. AA610352, AA486901, T96044, AA720926, H10090, AA486849, AA846414, AA856166. AA921455, AA107742, AA218234, AA222398, AA061741, AA003859, AA098205. AA098568, AA823282, AA538440, AA870562, AA915500, AI011419, C60180, T09530.

D66790, D66300, D65910, D65830, C10192, D66581, D65511, AA536383, AA263187, AA439901, AA392881, AA696901, AA816944, AA817624, AA390654, C49069, C48177, AA201668, D35415, AA540403, AA264017, AA978840.

SEO ID NO: 498

25

AC004242, AC004448, Z54073, Z76735, AC002463, U91328, L81878, U96054, U96061, U96050, AC003685, N27177, F10104, T88944, AA837803, T53321, N93216, AA843865, AA424412, AA424458, AA838754, AA211589, AA015818, H86776, AA158925, AA832265, AA418333, AA017326, AA240404, AA189236, AA543396, AA920341, AA003062, AA874548, AA199129, AA104098, AA668026, AA673749, Z33771, H37732, AA057947. AA508912, AA925453, C83487, AA879378, AA879400, D66615, T37003, C57628, T38909, Z30529, AI043540, D86790, AJ225398, AA849454, C59318, C58653, C58972, C58359.

35 C58782, C82631, C57954, C69079, C56577, C55666, C53627, C32300, AA224629, AI013551, T00131, C68482, C72389.

SEQ ID NO: 499

U44731, M81128, M55543, M55544, M63961, M14780, AC004530, U80955, M21494, Z78141, U66047, M55542, X73481, M94362, M80367, AL022117, Z82270, AA564268. N88929, AA044192, AA471169, AA093767, AA112212, AA194375, AA197163, AA977460, 45 C05415, F19355, AA722990, F21329, AA197131, C04155, F19358, AA176402, F22749, AA856166, AA921455, AA240404, AA061741, AA218234, AA107742, AA222398. AA823282, AA098568, C41769, D65910, D65830, C28722, C71757, D65511, D66581. D66300, C10192, D66790, AA998183, AA978840, AA817094, AA392895, AA246366. D34248, T43766, AA441550, AA540403, C49870.

SEO ID NO: 500

D87440, AC004518, AC004746, AC002492, AC002558, U14568, AC004217, AC004130, SAC004648, AC005217, AC003692, AA076663, AA862163, AA973753, AA086464, AA076654, AA666296, AA934680, AA302963, T55213, AA559290, AA176114, N27329, AA970213, N27763, AA804379, AA634889, N25296, R24887, AA571753, AA863851, AA415875, W64166, AA823826, AA517646, AA516955, AA516629, C88111, AI042710, W51648, H39328, A1044039, H39321, H39426, H39389, AA923995, AA787276, AA550283, AA713366, AA803997, AA803962, U74116.

SEO ID NO: 501

15 U44731, M81128, AF033097, AF045432, S78798, U66300, U39066, AF039698, Z97178, AA317362, N88929, N88781, AA095577, AA247964, N83168, N84718, AA856166, AA107742, AA921455, AA061741, AA218234, AA222398, AA098205, AA538440, AA915500, AA174774, AA823282, AA288216, AA204474, AA870562, AA098568, AF041408, AA660164, AA933363, A1011419, AA933116, C60180, T09530, D65830, D65910, D66581, D65511, D66300, C10192, D66790, AA660165, H07848, C93682.
 20 D66581, D65511, D66300, C10192, D66790, AA660165, H07848, C93682.

SEQ ID NO: 502

AC005276, AC003685, AC004448, U95997, AL009031, AC002326, Z97053, K01892, Z54073,
 Z76735, AC004690, AC004242, AC003078, AC002463, X12724, AC004456, U9669, N27177,
 F10104, T88944, AA837803, T53321, AA843865, N93216, AA838754, L13822, AA211589,
 AA832265, AA424458, AA424412, T89653, AA870126, AA104098, AA596129, AA461746,
 AA512220, AA921098, AA668026, AA543396, AA920341, C72024, C71903, AI013551,
 AI225398, AA849454, AA898284.

SEQ ID NO: 503

- U44731, M81128, M55542, M55543, M55544, M63961, M80367, X92112, U73641, U40423, AJ223732, AC003040, S67033, U72963, Z86064, D17519, M60873, U63337, AA317362, AA158924, W32064, AA305909, AA354725, AA100063, AA424070, AA296543, AA873192, AA311108, H30148, AA020729, AA346235, AA001029, AA878690, AA122936, AA880099, AA709608, AA217738, AA217704, AA990499, W71884, AA880120, AA288216, AA717634, AA204474, AA222205, AA589084, AA174774, AA008041, AA008046, AA822137, F14828.
- F14838, AA246802, C49281, C29182, L38527.

SEQ ID NO: 504

45

AA934680, AA302963, AA559290, T55213, AA176114, AA682912, R24887, AA804379, AA634889, N25296, AA599920, W79504.

WO 99/04265 PCT/US98/14679

SEO ID NO: 505

X56123, AF001392, AB002318, Z46906, U10098, L19268, AC004003, M63795, M81182, AL022333, X83489, M94203, M87312, L40489, L00727, X58528, L08835, D31413, R54389,

5 AA099762, Z17354, W28594, R17242, R18442, H50977, AA366319, T27372, H44662, AA367335, AA471266, AA632282, H74172, H94644, AA417191, AA013971, AA718262, AA015516, AA065946, AA770839, AA615519, W34578, AA657201, W17813, AA793573. AA592093.

10

SEQ ID NO: 506

Z17354, N41568, AA065314, N40571, AA064900, R94522, AA235815, AA156605. AA761982, AA253420, AA782695, AA533810, R48828, AA064905, AA770145, AA927597. AA934740, AA907518, H65346, AA393991, AA233601, N35879, T99315, AA614739, AA065946, AA770839, AA276737, AA036069, AA413718, AA413955, AA087178. AA823743, W20930, AA073223.

20 SEQ ID NO: 507

X56123, AB002318, AF036708, U73167, U90094, AC004534, AC000066, AA617862. AA745041, R41303, T30851, T55498, AA523382, H79450, AA640020, AA741423, H53771. R41853, AI042398, AA604320, AA947238, AA522881, AA533714, AA076342, R54390, 25 AA678226, AA470807, AA081011, AA934738, N20971, H79335, AA632282, AA131573. T55421, AA863150, AA604059, H94645, D19779, AA954917, AA076343, AA296715, R83719, AA353626, AA343126, AA015595, AA081221, AA334546, H51631, R96799, T85486, W22495, T20065, M85878, AA129429, T78812, AA443644, AA329315, AA402527. AA535670, W54749, AA245381, C77940, AA619299, W11109, AA815774, AA240557. 30 C77836, AA655265, AA451361, AA208883, W54171, AA920412, AA562035, AA518913. AA184813, AA518377, AA738720, AA259407, AA253634, AA797060, AA733912.

SEQ ID NO: 508

AA796338, AA821471.

AA617862, R41303, T30851, AA741423, H53771, AA640020, R41853, AI042398, AA947238. AA604320, AA745041, T55498, AA533714, H79450, R54390, AA678226, AA523382, AA081011, AA470807, N20971, H79335, AA522881, AA632282, AA131573, AA934738.

T55421, AA863150, AA604059, H94645, D19779, AA954917, AA076343, AA076342. AA296715, AA353626, AA015595, AA081221, R83719, AA334546, AA343126, H51631, T20065, R96799, T85486, W22495, AA129429, C77940, W54749, AA240557, C77836, AA815774, AA245381, AA619299, W11109, AA562035, AA920412, AA655265, AA451361. AA184813, AA208883, W54171, AA738720, AA518913, AA259407, AA253634, AA800962,

45 AA963186, R86448, T14710, T20839, D48023, T42380, C74816, Z18025, D48172, A1044816.

COVERNOOD OCCUPATION

X56123, AF001392, Z46906, M63795, M94203, Y17586, L19268, L08835, M87312, L00727, M31118, J02649, X84651, U17193, U14172, M22724, Z17354, N41568, N40571, AA065314, AA523043, AA235815, T99315, AA253420, R94522, AA927597, AA393991, AA166505, W44635, H65346, AA770145, N35879, AA934740, AA533810, AA233601, AA065946

5 AA276737, AA770839, AA064134, AA823743, AA036069, AA413718, W20930, AA413955, AA087178, AA073223, AA738964, AA738577, AA237833.

SEO ID NO: 510

X56123, AB002318, AF036708, U73167, AC004534, U72877, U90094, U41110, R41303, T30851, AA617862, H53771, AA741423, AA640020, R41853, AI042398, AA604320, AA947238, AA533714, W54749, AA240557, AA815774, AA245381, C77940, AA619299, C77836, W11109, AA655265, AA451361, AA562035, AA800962, AA963186, T46610,

15 N97287, H36233, AA395747, T76144, T20839, T14710, D48023, T42380, C74816, AI044816, D48172, R86448, AA978910, AI007653, N97212.

SEQ ID NO: 511

20

X56123, AB002318, AF036708, AC004534, U73167, U90094, AF016684, AA617862, AA745041, AA523382, H79450, T55498, AA522881, R41303, T30851, AA741423, H53771, AA640020, R41853, AA076342, AI042398, AA604320.

25 SEO ID NO: 512

X56123, AB002318, U10098, AC004003, L26543, L23853, M82975, L09273, M83930, D31413, R54389, AA099762, R17242, R18442, H50977, T27372, H44662, AA367335, AA471266, H74172, H94644, AA452483, Al028611, N53073, AA970963, T7434

SEQ ID NO: 513

- 35 X56123, AF036708, AC004534, AB002318, U73167, U90094, M30511, M35324, S74059, U53569, AE000647, R41303, T30851, AA640020, AA617862, AA741423, H53771, R41853, AI042398, AA604320, AA947238, AA533714, R54390, AA678226, T55498, AA53382, H79450, AA470807, AA081011, N20971, AA745041, H79335, AA632282, AA131573, AA934738, T55421, AA522881, AA863150, AA604059, H94645, D19779, AA954917,
- 40 AA076343, AA296715, AA076342, AA353626, AA015595, AA081221, R83719, AA334546, H51631, AA343126, T85486, W22495, AA129429, T20065, R96799, AA443644, T78812, AA864764, N53004, W48656, AA599769.

45 SEO ID NO: 514

X56123, AB002318, U10098, Z00027, X61367, X02803, Z50120, M81182, X58528, AL022333, X81123, X83489, L40489, U67156, D84476, Z77163, X82190, X60985, M85183

SEQ ID NO: 515

X56123, AF036708, U90094, U73167, AC004534, R41303, T30851, H53771, AA741423, AA640020, R41853, Al042398, AA604320, AA947238, AA533714, R54390, AA678226, AA617862, AA081011, AA470807, N20971, H79335, AA523382, AA632282, H79450, AA131573, T55498, AA745041, AA934738, T55421, AA863150, AA604059, H94645, D19779, AA954917, AA522881, AA076343, AA296715, AA353626, AA076342, AA015595, AA081221, AA334546, R83719, H51631, AA343126, AA129429, AA443644, T78812, N27755, N77887, W94236, AA329315.

10

SEQ ID NO: 516

AP000015, U01229, AB010266, M89651, M20187, AC003046, U88317, AC004455, M58588, U12620, AA190743, AA446042, AA187765, AA251942, AA070973, T12175, Z28837, AA095263, AA297663, AA297663, AA286738, W79190, AA248318, AA374275, AA905643, AA375387, AA375075, AA128252, AA147519, AA039871, Z28788, AA176681, R05983, N24510, W01709, N76809, AA056996, T82969, AA013342, T28951, R06553, AA683199, AA912663, T66800, AA017284, AA018380, AA285584, AA274436, AA080145, AA106812, AA107465, AA978573, C09443, T04550, AA660481, C57194, AA539959, AA901489, R03466, C57793, C60067, C32813, C56422, C38913, C38374, D71946, C37666, C36970, C37432, C35082, C34873, C33593, C32700, AA996525, C31743, C23990, C11668, D34905, AA997395, D71488.

25

SEQ ID NO: 517

AC004593, Z71187, AF072897, AF003130, Z98977, D85144, AA887587, AA573374, AA429894, AA039871, AA609693, AA128252, AA041470, AA070974, AA758806, W74455, AA026161, AA702826, AA845873, T78267, W25088, AA558142, W79190, AA128310, AA864348, AA187765, AA298500, Z24831, AA853034, AA905600, Z25193, AA446042, AA912741, AA029405, AA621462, AA070810, AA873244, AA181975, AA248612, N88589, AA905746, AA297663, T32497, AA057693, AA147519, AA564951, AA090057, AA026707, F01034, H84765, Z28837, Z19219, R17237, AA179599, AA375030, R82265, AA669099, W74720, AA727541, AA717607, AA276566, AA795287, AA717606, AA510328, AA796002, AA638632, AA799592, AA796003, A080145, AA106812, AA285584, AA275392, AA274436, AA709830, AA467325, AA654973, AA522178, AA200990, AA215170, AA763583, AA067855, AA671613, AA254647, A1014019, C70194, C67526, N82551, AA849721, AA850360, C43975, D43217, C28123.

40

SEO ID NO: 518

U41387, U22665, AL023704, AC005159, X16986, Z97339, AF075598, X15684, AC002492, Z82288, U50137, U59435, AB012246, AC004016, U92844, AL023814, AA314858, AA308981, AA100679, AA133576, AA545766, T18589, AA133577, T35498, AA308544, AA181561, AA161498, AA453744, R53263, AA674489, AA873991, AA153278, AA645800, AA796669, AA117400, AA219998, AA790234, AA289213, AA109788, AA881220, AA645936, AA762755, AA898732, AA788262, AA686127, AA294063, AA695135, AI007440,

AA685709, AA686442, AA960726, AA799672, AA686609, AA933514, AI030724, AA784464, AA858459.

5 SEO ID NO: 519

U41387, AF064859, U42841, U95737, AC005215, AL008636, AC003971, AC004101, Z70682, Z81538, X06308, Z95329, AA639234, AA243645, AA088842, AA669838, AA284467, AA453808, AA128764, AA128763, AA873045, AA436235, AA574344, AA724717, AA640981, AA813445, AA716639, AA722998, AA453893, AA887949, AA283605, AA736609, AA836346, AA824480, R74688, AA672435, AA123122, C85192, AA267815,

AA736609, AA836346, AA824480, R74688, AA672435, AA123122, C85192, AA267815, AA739635, D32390, D32599, D34114, AA141300, AA520882, M80184, AA842705, N98036, AI013621, AA750909, T09621, AA550655, AA800790, C94478, AA042747, C12900, C91154, AA001583, D36567.

15

SEO ID NO: 520, 521, 522

U30872, U19769, U25725, AC002071, U62026, U29615, AF058919, Z95703, AL021474.

20

SEO ID NO: 523

L06237, X60370, X51396, Z29519, X67778, M83196, X66840, M30270, M30271, AC000385, U38292, D86978, U38291, AL008711, Z81066, AE000410.

SEQ ID NO: 524

L06237, X51396, X60370, Z67736, AB010077, Z61460, X67778, AA564629, W22414, AA984109, W28421, W27855, W28105, W26436, W25928, AA650363, AA102502, W29026, AA504701, AA111983, AA083718, AA912012, AA037860, AI033363, N50670, N88650, T55410, AA908935, AA707373, AA231294, W35860, AA793048, AA637587, AA920512, AA920495, AA755484, AA444883, AA409078, H31241, AA395128, AA201483, AA978748,
 AA951418, C82641, AA783290, C83497, AA012719, AA012773, A1043282, C61164.

AA949923, AA012678, AA893180.

SEQ ID NO: 525

40

L06237, X51396, X67778, U52950, X60370, M30270, AC002297, AC002295, Y14568, AF067607, Y10512, M97477, AA663039, T08382, F12058, T78361, H16377, AA100029, N87281, A1039749, R79923, T98690, AA530716, AA645968, AA656277, AA667643, AA168421, AA073597, AA250558, AA144582, W64789, AA250041, C45631, AA946497,

45 AA520211, AA519102, AA849858, AA979288, AA520297, AA660331, AA532013, AA519214, AA520225, D23332, AA519912, AA192037, AA742018, AA741784, AA741869, AA264183, AA997435, AA519152, AA192061, C26731, W35667.

SEO ID NO: 526

L06237, X51396, X60370, X67778, D86978, Z67736, AF028339, X87635, S81773, Z61460, U50396, AC003013, AB007648, X83580, X69138, AB010077, W22414, AA564629

- AA984109, W28421, W26436, W27855, W28105, W25928, W29026, AA650363, AA102502, AA912012, AA504701, AA111983, AA083718, W40515, AA219045, AA037860, A1033363, H99609, AA324177, N88650, AA017578, AA680024, AA908935, AA077556, AA707373, AA231294, W35860, AA637587, AA920512, AA536775, W36170, AA619991, AA920495, AA444883, AA755484, W57042, AA285874, AA409078, AA458300, AA793048, AA066697, AA839691, AA289862, AA562632, W85127, AA590098, AA409812, AA030944, AA571682, AA238992, AA458190, AA816067, AA118112, AA509393, AA986850, AA615852, AA544051, AA791722, AA816047, AA221748, AA222986, W41052, AA53638, AA710117,
- AA536972, AA518822, AA518402, AA618822, AA544051, AA791722, AA816047, AA222986, W41052, AA530638, AA710117, AA529489, AA986880, AA898732, AA788262, AA686127, AA294063, AA695135, AI007440, AA685709, AA686442, AA960726, AA799672, AA686609, AA933514, AI030724, AA784464, AA858459,

SEO ID NO: 527

THE PERSON NAMED IN

THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED

L06237, X51396, X60370, Z67736, AB010077, AF023460, Z61460, AA564629, W22414,
AA984109, W28421, W27855, W28105, W26436, AA650363, W25928, AA102502, W29026,
AA504701, AA111983, AA083718, A1033363, AA037860, AA120899, AA707373, AA231294,
W35860, AA920495, AA637587, AA755484, AA793048, AA409078, AA920512, AA444883,
H31241, AA951418, AA395128, AA978748, AA999088, AA201483, AA893180, AA801113,
T41873, R03716, H37273, AA012773, C65763, C61164, AA067478, C44711, C69224,
AA012678, AA949923, AA012719, AA783290.

SEO ID NO: 528

Y13537, X70672, AB005554, Z19574, L78811, AB012240, AC001530, AA223139, AA355262, AA319397, AA333714, Z45759, AA287603, R20567, AA022991, AA435513, AA774585, AI004443, AA460142, AA602372, F19634, AA461185, AA346094, W86961, W72923, R13844, W94217, AA723271, D82556, AA663506, H08555, AA247414, AA449686, W22305, W78856, AA358091, AA758662, W76476, AA235142, W92947, R43867, D82452, W79591, AA918818, W92367, T33810, AA163859, AA387139, AA655548, AA793418, AA870492, AA270947, AA691478, AA542374, AA153558, AA712836, AA712793, D39880, AF054448, C65634, D69635, D39890, AA841965, AA736083, W43422, AA824811, D39923, N98004, N96290, AA696686, F14708, AA817863, T00933, AA228154, N96208

SEQ ID NO: 529

40

AC004031, AF012871, U74670, U41556, AF012868, AF012869, U49426, AF034762, Z98941, AA706552, AA195388, AA195257, AA194059, Al032600, AA807922, AA631609, W96149, AA888146, AA128526, AA701257, AA677383, W96282, H21675, AA724198, H25808, AA722414, D60312, H25767, AA223140, AA910055, AA203733, D80704, Z41408, D81423, C15473, R51558, H21676, AA541132, AA194077, AA319397, AA714509,

40

SEQ ID NO: 530

X16515, L22021, U81153, Z46266, Z74037, Z99281, AC002299, AC004703, L78833, AF000261, U82083, AL021472, Z73897, AL009048, AC003960, L10351, Z95125, AF067949, S65054, Z77666, M77191, M19152, U14634, U07603, M55629, L63545, AF044870, Z82258, U09500, AB005240, X51582, X62996, Z80901, AF044862, Z83237, D38112, Z83218, AF003135, X93334, V00662, U67538, Z82071, AF026212, AF016682, D66906, J01415, U40160, L09247, AF014939, AF044869, U46100, Z93382, AF044866, Z93018, AA418425, AA242889, W03015, W25672, AA384085, AA455417, R16931, AA991639, N77368, N87364.

229

10 T84421, AA741182, T82821, T10388, T98370, AA503577.

SEO ID NO: 531

15 AC004525, AC002430, AC003047, Z96050, U63721, U62293, AC002527, AF001548, AC004750, AC004000, AC004216, AC002994, L78810, AC002312, AC002302, AC004542, U91318. AC004685.

20 SEQ ID NO: 532

AF042416, AF000967, AC000373, AC005153, W28244, AA354316, C05280, AA318047, AA249758, Z19174, AA481880, AA355471, D80624, T20263, R19801, AA362032, AA362508, AA587580.

SEO ID NO: 533

AB010693, AC002425, L08835, L00727, X82822, X05861, AC001228, U28374, AC003982, U39674, AL023533, AC005257, AC002302, U41018, Z83745, AC001142, AP000010, AC005221, U51281, AA022760, AA229815, AA279617, W61327, AA521356, AA933693, AA327640, AA339452, AA150758, AA780200, AA811639, W92986, AA229651, AA953083, W61328, AA279975, AA132092, AA022624, AA996286, Z20110, Z19175, AA229209, AA228413, AA251050, W27821, AA584677, AA704918, H48224, R85851, R81693, AA501450, AA334197, AA906348, H66169, AA703333, AA215982, R37208, H44630,

N35896, AA034141, AA366990, AA534947, AA476626, AA584752, M86142, H68177, N20066, AA167018, AA431922, AA913549, W25524, AA177103, AA494194, AA723282, AA01318, AA493902, AA913114, W32760, H02400, AI039256, AA594229, AA599723.

SEO ID NO: 534

M81890, D87011, AF001549, D87009, X69465, AB006684, Z93023, AC000024, M86351, AA079560, AA486992, AA641426, AA865212, AA988957, AA626571, R69215, Z43987, W23956, AA164280, R44480, H19173, R07885, AA644681.

X64143, M81890, Z61938, Z93023, K02827, M11610, AF020688, U83619, AF020687, AF020686, X02265, X83681, X69516, U02714, AA865212, AA641426, AA985306, AA486992, AA076652, AA534510, AA293408, AA399477, Z25115, AA648342, AA955004 W19887, N91693, Z43987, AA284346, AA164280, AA644681, AA731439, AA317138.

AA960796

SEO ID NO: 536, NR. X16515, U97209, U97205, U35413, AB008265, D86995, U97208, U97206, Z69782, U97207, AC002090, L81775, AC003988, U90441, L09247, U46100, U62738, AC002380, AC004629, Z68500, X93334, S72904, X62996, U09500, V00662, X77825. AC000365, D38112, AL022097, M55629, J01415, Z32681, AE001179, AA431044, AA991639. T10388, AA037576, AA723030, AA502034, D54939, AA194604, AA487686, AA659344,

AA502487, AA193059, AA180918, AA610163, AA935460, F20808, AA095036, AA657662, F22234.

15

SEQ ID NO: 537

AA811439, AA252033, N72273, AA610861, AI041703, H49544, AA741182, R16879, T98371. N55362, AA455417, T90000, T84421, T82821, T98370, AA418425, R16931, AA459285. AA128977, AA504562, AA434037, AA459514, N77368, AA490845, AA410834, AA442182. H38772, R94289, AA694572, AA568459, AA677600, AA081138, R17077, T90646, T90660. AA205107, H09253, N51714, N51383, AA873540, AA223542, AA884235, H62538, AA406358, W79816, AA608743, AI032812, F03919, AA988713, AA857925, AA347678. R09155, F10039, AA358343, AA101731, AA527619, AA805444, H49641, AA533957, AA533378, AI014798, AA906947, N81069, AA618471, AA618417, AA488802, AA228349. AI003742, AA938396, T06704, AA640842, AA572953, AA342141, AA586459, H30037, N23840, AA565426, AA477053, AA533545, N38806, AA569178, AA837756, AA856954. AA258889, AA258786, AA132765, N54301, AA527893, R02545, AA612810, AA593516,

AA768555, T62623, AA644545, AA983416, AA652861, AA629769, AA847097, AA569737, AA602954.

SEQ ID NO: 538

AB008264, X66098, X66097, AC004781, AA223385, W00659, AA299364, AA147874. R19569, AA248406, AA316289, AA197226, AA091120, AA773852, N55059, AI000381, F08533, AA744486, AA093550.

40 SEQ ID NO: 539

Z85994, AC002038, Z92546, AC002467, Z83823, X95646, AF020798, Z75537, AC003071, AF043196, AF002996, M76981, D50354, Z49908, U55373, Z70684, L18877, D50345, D86203, AA147837, AA007624, AA024558, AA976598, AA164679, AA946802, AI031793, W90030,

AA025311, N26243, N68960, AA165076, AA071166, AA480601, AA128165, AA804439, AA687145, AA854484, AA551651, AA761586, AA229403, AA223303, AA125978, D11848. AA909934, AA765037, R02332, R02434, AA814220, AA319268, AA773852, AI051799, AA458967, R12500, AA862852, N70346, AA814638, AA703113, R62453, AI040743, AA703006.

SEQ ID NO: 540

Z49250, L42305, X58470, U41456, D90745, X14336, D85144, X59771, L81891, AE000210, J04358, U21330, AA290723, AA573499, AA731091, AA283710, AA927565, N95536, AA694439, AA324714, AA379483, AA805306, AA774869, AA379994, R14378, AA214396, H47665, AA001405, W95192, AA043190, AA721753, AA641598, AA627345, AA702321, N28912, AA446322, AA415277, AA171097, AA444428, AA000614, AA738699, AA940013, AA717988, W64914, W10683, AA833125, AA762162, AA197530, AA981760, AA718011, AA119104, AA096888, AA221937, AA982781, D77216, W53574, W09810, AA914615.

MAII/IOA, MAO/0000, MAZZI/S/, MAO/OA, D//ZIO, MOSS/I, MOSS/I, MOSS/I

SEQ ID NO: 541

AC002452, AF003140, AC002382, U41624, AF017732, AF001851, Z69719, AC004525, AA608559, AA811390, AA595663, AA178965, AA827242, AA834531, W31918, AA744475, AA643270, AA292001, AA515015, R44662, AA047466, AA969032, AA864694, AA768335, W24955, AA278457, AA768162, AA293263, AA369891, AA749083, N63305, AA369890, AA663654, T62232, AA085886, AA813873, AA429145, AA047400, D20621, T31504,
 T89930, AA133203, H49462, AA664771, AA748050, AA846097, H80913, AA075576, AA534371, AA809339, AA948590, N21055, AA137871, AA189391, AI035905, W10608, AA117687, AA199092, AA014518, AA272907, AA238467, AA517207, W80106, W71353, AA636204, AA929877, AA644860, AA797414, AA102898, AA517326, AA832978, W61948, AA166486, AA137744, AA6445939, W54331, C90619, AA925997, A1010497, A1010681,
 T01768, AA996526, AA257229, AA697409, C89764, H35524, C90373, C993878, C92770,

SEQ ID NO: 542

C91930.

U13847, L08924, J02675, M12159, U66885, L08817, U03461, M20189, X67019, D90714, L08921, U87107, M11320, L08922, Z49250, U03460, X67018, X02306, AE000178, L08923, U03459, U41456, X14336, X58470, J04358, D90745, D85144, L42305, AE000210, U21330, X59771, AE000675, AA573499, AA283710, AA731091, N95583, AA290723, AA694439, AA927565, AA805306, AA774869, AA379994, R14378, AA305260, AA214396, H47665, AA043190, F13037, T08367, N28912, AA627345, AA702321, AA344594, AA721753, AA446322, AA415277, AA171097, AA444428, AA982781, AA000614, AA717988, A940013, W53574, AA718011, AA221937, AA833125, W10683, W09810, AA914615.

W64914, D77216, AA738699, AA197530, AA762162, AA119104, AA096888, AA955830,

40 H33467, AA052021, AA007704, AI044010.

SEO ID NO: 543

45 AC002452, AF003140, AC002382, U41624, AF017732, AC004525, AF001851, Z69719, AA608559, AA811390, AA595663, AA178965, AA827242, AA834531, W31918, AA744475, AA292001, AA643270, AA515015, R44662, AA047466, AA969032, AA864694, AA768335, W24955, AA278457, AA768162, AA293263, AA369891, AA749083, N63305, AA369890, T62232, AA663654, AA085886, AA813873, AA429145, AA047400, D20621, H49462,

T31504, T89930, N21055, AA290571, AI000395.

SEQ ID NO:588

5

10 L07872, L34544, L34543, S63463, X17459, M81871, L07873, L08904, X59130, X59129, U60094, U60093, M81869, Z36843, L07874, L07875, L07876, M81866, M81867, M81870, M81865, AC002502, X58337, U49795, U49794, M94383, X66728, X58393, X65871, Z71185, AB003695, AC000100, AA101254, AA171575, AA332410, AA081973, AA101350, T67576, T19153, AA547961, R44578, F01398, U69195, T23712, R37405, D58647, AA429185

15 AA971158, R71133, AA948444, AA379373, AA770375, AA836690, AA811802, AA806363, AA496170, AA080102, AA104575, AA110087, AA111451, AA104058, AA098398, AA104601, AA389459, AA087347, AA407529, AA655129, AA870247, AA098304, AA415317, AA111471, AA110512, AA104790, AA542353, AA107448, AA500811, AA517402, AA072168, W36221, AA619786, AA682146, AA200846, AA038054, AA562718,

AA637070, AA817421, AA736032, L46413, C12590, C73485, AA924572.

SEQ ID NO:589

- 25 L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81877, D90168, M64933, D90170, D25323, AF016494, L19394, AA701607, AA042864, AA641661, AA640106, AA483607, AA06972, AA903408, T67414, AI023923, N95392, AA788576, AA171398, AA101255, AA676341, AA169326, AA669918, AA101351, AA908462, AA044415. AA678797, AA126685, AA156824, U69195, AA705248, R12509, T23713.
- 30 F05151, R19314, AA092442, T70135, AA705236, R57841, T61464, AA491057, AA501219, AA895510, AA052401, AA221065, W41110, D18981, AA522251, AA986473, AA946131, AA850747, AA945522, A1013632, A1014061, AA148327, A1008946, C24294, AA945480, AA858592, H33313, R46988, A1009864, A1010102, AA943376, AA924151, C47318, C74680, AA899268.

- L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60094, U60093, AF016494,
 40 D89933, AF038391, M29237, D31888, M22835, Z71502, D86977, AA701607, AA640106,
 N95392, T67414, AA042864, A1023923, AA641661, AA483607, AA069672, AA101255,
 AA676341, AA788576, AA169326, AA101351, AA908462, AA044415, AA171398,
 AA903408, AA678797, AA156824, AA669918, AA705248, T23713, F05151, U69195,
 R19314, R12509, AA705236, AA126685, R57841, AA491057, AA501219, AA895510,
- 45 AA052401, D18981, AA522251, C87048, AA986473, AA002573, AA924151, AA943376, AA899268, D35942.

SEQ ID NO:591

- L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81877, S M64933, D90170, D25323, D90168, AF016494, AA641661, AA701607, AA042864, AA640106, AA903408, AA483607, AA069672, T67414, AI023923, N95392, AA171398, AA788576, AA669918, AA101255, AA676341, AA169326, AA101351, AA908462, AA126685, U69195, AA678797, AA044415, R12509, T23713, AA156824, AA705248, R19314, F05151, T70135, AA092442, AA969666, R45471, AA234950, W25228, R16902,
- 10 H19326, AA235124, AA935398, F04242, AA705236, AA233367, AA232981, T79039, AA160334, AA563914, AA897714, T61464, AA928817, R44692, T32446, T16534, AA501219, AA895510, AA052401, AA221065, W41110, AA986473, D18981, A1008946, AA6858592, AI009864, AI014061, AA945522, AA945480, AI010102, AA891259, AA946131, AA850747, C74680, AI013632, AA148327, H33313, D35942, AA899268, AA924151, AA943376,
- 15 AA057899.

SEQ ID NO:592

20 L34543, L07872, L34544, L08904, X17459, S63463, M81871, M81876, M81877, AA641661, AA701607, AA903408, AA640106, AA042864, AA483607, N95392, AA126685, AA0303923, AA069672, T67414, AA788576, AA101255, AA676341, T70135, T23713, F05151, AA169326, AA171398, U69195, R12509, R19314, AA101351, AA044415, AA935398, AA669918, H19326, AA969666, W25228, AA235124, R45471, R16902, AA234950, AA705248, F04242, AA233367, N99612, H18155, AA424744, AA594925, AA774998, AA501219, W97394, AA941118, AA696703.

SEQ ID NO:593

30

- L34543, L07872, L34544, L08904, S63463, X17459, M81871, U60093, U60094, M81876, M81877, AF016494, Z71265, AA069672, A1023923, AA042864, N95392, AA788576, AA701607, AA641661, T67414, AA171398, AA101255, AA676341, AA169326, AA101351, AA903408, AA640106, AA908462, AA044415, AA483607, AA156824, AA669118,
- 35 AA678797, U69195, AA126685, AA705248, T23713, R12509, F05151, R19314, T70135, AA092442, R57841, AA705236, T79039, T16534, AA897714, AA928817, T32446, R44692, AA501219, AA895510, AA511219, AA986473, AA052401, W74810, D18981, AA891259, AA924256, AA924151, AA943376, AA899268, C74680.

40

SEQ ID NO:594

L07872, L34544, L34543, X17459, S63463, M81871, L07873, L08904, X59130, X59129, U60094, U60093, M81869, Z36843, L07874, L07875, L07876, M81866, M81870, M81867, X58337, M81865, U49795, U49794, AC002502, M94383, X58393, AB003695, M81868, U22418, Z15005, Z71185, AC000100, AA101254, AA171575, AA332410, AA081973.

AA101350, T67576, T19153, AA547961, R44578, U69195, F01398, T23712, R37405, AA429185, D58647, AA948444, AA971158, R71133, T95219, H66386, H49719, H66535, W84832, R00639, AA203664, W90492, AA806363, AA811802, AA496170, AA428549, AA379373, AA836690, AA770375, AA080102, AA12811, AA655129, AA104601,

5 AA389459, AA104575, AA104790, AA110087, AA087347, AA111471, AA110512, AA111451, AA104058, AA870247, AA542353, AA107448, AA098398, AA407529, AA098304, AA183659, AA817421, C12590, AA736032, AA818143, AA800931, C73485, AI009770.

SEQ ID NO:595

10

L34543, L07872, L34544, L08904, X17459, S63463, M81871, U60093, U60094, M81877, M81876, U66059, U07978, D25323, AA641661, AA701607, AA042864, AA640106, AA903408, AA483607, AA069672, T67414, AI023923, N95392, AA171398, AA788576, AA669918, AA101255, AA676341, AA169326, U69195, AA101351, AA908462, AA126685, AA044415, AA678797, R12509, AA156824, T23713, T70135, AA705248, R19314, F05151, AA092442, AA969666, R45471, W25228, AA235124, AA234950, H19326, R16902, AA935398, F04242, AA233367, T79039, AA705236, AA232981, R57841, R11284, AA501219, AA052401, AA221065, AA522251, AA986473, AA967290, W41110, D18981, C74680, AA943376, AA924151, AA899268, D35942, F14238, AA057899.

SEQ ID NO:596

U85198, M64933, AA641661, AA701607, AA903408, AA042864, AA640106, AA483607, AA069672, Al023923, T67414, N95392, AA669918, AA788576, AA171398, U69195, AA101255, AA676341, AA169326, AA126685, AA101351, AA908462, AA678797, AA044415, R12509, T23713, T70135, AA705248, R19314, F05151, AA156824, AA092442, W25228, AA969666, AA234950, AA235124, H19326, R45471, R16902, F04242, AA935398, AA233367, AA232981, T79039, AA705236, R57841, T61464, AA169765, AA174104, AA310871, AA501219, AA895510, AA052401, AA221065, AA148327, C74680, A1014061, A1013632, AA850747, A1008946, H33313, AA998132, A1009864, AA945522, AA946131, AA858592, AA945480, A101102, AA924151, AA866343, F14238, AA097174, AA943376, AA899268, D35942, AA057899, H33820.

L07872, L34543, L34544, L08904, S63463, M81871, X17459, U60093, U60094, M81877, M81876, L07873, AC003986, U58757, AF036696, U07978, D90168, AF016494, D90170.

40 SEQ ID NO:597

AF003001, U40705, U74382, AF043911, U65586, U70992, U70993, U70994, AF022794, Y08905, Z78062, AC005220, U00921, X67841, AF040571, AC004022, AC004356, S78260, Z99287, Z98880, Z45971, Z19923, F13251, AA467846, AA468251, AA468235, T76958, AA143672, R71273, AA053348, N31972, AA926904, H42443, R68195, T90873, AI038855.

45 AA143672, R71273, AA053348, N31972, AA926904, H42443, R68195, T90873, A1038855, N31985, AA399211, AA936307, W04528, AA834965, AA529658, AA103157, AA756846,

W90959, AA141049, AA294496, AA618872.

SEQ ID NO:598

שבע.טאו עו טינפ

5

U40705, AF043911, AF003001, U74382, U65586, X93511, L63545, U47029, AC004484, D83257, Y17297, X13986, S78177, J04806, X16151, X51834, X80836, Z72675, Z72673, M27674, U39650, Z48618, AF015262, AC002550, AJ229043, U21099, U03980, Z36238, D89159, M38723, X55891, U89510, AF016447, AF059294, U70034, U32938, AF001295,

- X62309, Z75115, AC004609, U60981, U64837, Z49907, Z82195, Z85999, AC004475, Z72488, AA467901, N68057, AA135978, AA135764, AA463246, T76958, R70911, AA467846, F13251, AA317158, AA207271, T63517, R68526, AA468251, AA204808, R25990, AA122171, AA084663, AA085094, AA122187, AA076496, AA205778, AA932416, AA954256, AI024113, AA074080, AA132239, AA744582, AA740566, AI017413, AA860885, AA019029, AA013185, AA529658, AA982217, AA980925, AA073811, AA563324, AA145872, AA798241.
- AA537448, AA986704, AA591084, AI043071, AA111749, AA839469, AI042865, AA106200, W08572, AA789592, AA104908, AA105296, AI035296, AI043053, AA068696, AA562128, AA122501, AA869031, C76786, AA673813, AA217034, AA647070, AA432419, AA146527, AA546210, AA760152, AA413194, AA529872, AA245574, L26814, AA433046, AA789517, AA046288, AA755609, AA495447, AA942845, AA597431, AA041093, AA041150, AA042294,
- 20 Al036388, AA755609, AA495447, AA5942845, AA597431, AA041093, AA041150, AA042294, T46728, AA395569, Z30088, C08922, AA395573, T21481, C40564, C51441, T20852, H37005, AA658796, T46390, AA451595, AA192037.

25 SEO ID NO:599

- U40705, AF043911, AF003001, U74382, U65586, U70993, X93511, L63545, U70992, D83257, AC004484, U47029, AC002433, Y17297, J04806, X16151, Z47809, AB010068, X1986, X51834, S78177, D84394, Z36238, U39650, AC003663, Z48618, U21099, M27674, U03980, Z72673, X80836, Z72675, L16560, AA467901, N68057, AA467846, AA135978, AA135764,
- F13251, T76958, AA463246, AA468251, R70911, Z45971, AA468235, AA317158, AA207271, Z19923, T63517, R68526, AA204808, R25990, AA122171, AA076496, AA084663, AA129187, AA085094, AA954256, AI024113, AA074080, AA932416, AA740566, AA205778, AA132239, R71273, AA744582, D60549, T16205, R12806, H42443, AA834965, AA926904,
- AA013185, AA019029, AA142896, N31985, AA936307, R25132, AA865406, N21157, A1017413, AA159666, A1038855, AA838062, AA569371, AA740956, AA860885, R68195, H02507, AA143173, AA969795, AA928532, N22437, N31972, AA529658, AA103157, AA982217, AA122501, AA980925, W08572, AA798241, AA839469, AA789592, AA986704, AA105901, AA563324, AA145872, A1043071, AA591084, A1035296, AA073811, A1042865,
- 40 AA562128, AA537448, AA111749, AA869031, AA106200, AI043053, AA104989, AA068696, C76786, AA673813, AA432419, AA217034, AA647070, AA942845, AA495447, T46728, AA597431, AA752361, AA042294, AA041093, AA041150, C08922, AA395569, Z30088, AA3955573, AA856242, H37005, AA451595, C51441, T43684, C39930, T36345, C39943, C40564, C90893, AA658796, AA651440, T46390, AA651575, AA192037, AA294496,
- 45 AA618872, T21481, AA141049, T20852.

SEQ ID NO:600

M63167, X65687, M80675, Z75263, AF029308, AC004118, U18262, AC003970, M68651, U39667, AC002368, AF039720, AA449097, AA464153, AA780192, AA410624, AA910628, AA504155, AA041305, AA642889, AA779598, AA323762, N59091, AA641572, AA775924, AA419297, AA494485, H44692, R87744, AA293630, AA328833, H44470, AA593626, H20505, AA235684, AA864467, T27622, AA043078, R20913, AA040851, AA464217, C40703, AA063612, AA808084, AA641279, F00510, AA283669, T03388, AA466889, AA630466. AA029628, C01998, AA506129, M78924, AA011575, H03551, H39037, R87811

- 10 AA782531, AA044077, AA056416, AA887954, F00033, AA029653, AA887952, AA814959, AA622342, AA287197, AA147226, AA683561, AA082094, AA477383, AA922963, N59496, AA284493, AA477135, AA411074, R72069, AA618360, AI016521, AA610329, H38458, AA560617, AA411861, H03465, AA454688, AA456335, R20800, R72116, H96391, AA449529, AA041329, AA877759, H44436, AA927813, N32976, AA011602, AA700978,
- 15 AA988346, H01966, H67192, AA309612, AA626434, T39728, AA169456, AA164806, AA904790, R98618, H67180, AA988124, W72647, AA646329, AA003121, AA415535, AA186148, AA647701, AA528969, AA270159, W45884, W40915, AA981343, AA273536, AA163540, AA413890, AA597275, AA139683, AA153254, AA798907, AA144007, AA959146, AA666794, W83421, AA500374, AA647916, AA636884, C89408, AA014488,
- 20 C76913, AA386898, AA516946, AA117672, AA007846, AA020412, AA073660, AA996919, AA799664, AA998057, AA417500, AA933471, AA224616, AA933239, N41234, A1052884, AA068384, AA990965, AA890884, C83287, C82431, C43259, C65815, D49302, C72699, AA946375, AA892800, C40998, T14784, AA990930, C47753, C63880, C72049, AA996446, AA998751, AA956224, AA996966, AA998090, AA955672, AA787384.

- M63167, AC004361, M68651, Z83316, Z35640, AF040644, U42846, AA323762, H44470,
 AA449097, R20913, AA464153, C04703, AA780192, AA328833, AA410624, AA464217,
 F00510, H44692, H03551, AA235684, AA642889, AA494485, AA293630, AA779598,
 N59091, R87811, AA041305, AA910628, AA775924, R87744, AA504155, AA641279,
 T27622, H20505, AA593626, AA011575, AA044077, AA642689, AI016521, AA630466,
 AA808084, AA506129, AA887952, AA887954, AA147226, AA040851, AA029628, T03388,
- 35 AA056416, AA641572, AA063612, AA622342, M78924, AA419297, N59496, C01998, AA043078, H39037, AA864467, AA082094, AA683561, AA411074, AA922963, AA283669, AA029653, AA454688, AA782531, H96391, AA411861, AA814959, F00033, AI040215, AA459455, H82393, AI038676, AA457137, AA486486, AA609695, AA972069, AA428831, AA603467, AA455220, R38120, W25052, AA287149, M91502, W07854, AA927813.
- 40 AA496297, T35158, AA292426, AA862443, AA910749, AA477135, AA041329, AA410353, AA981343, AA007827, AA050689, AA413930, AA789712, AI035716, AA048410, AI035710, AA020215, AI035569, AA500374, AA386898, W83421, AA924676, AA550539, AA925622, AA294289, D33598, AA787384, C25717, T20639, AI012376, C84815, D34101.
- 45 SEQ ID NO:602

U82108, AF004900, Z50150, AF035771, M87526, H27184, R72257, H49053, AA144402, AA900990.

5 SEQ ID NO:603

U82108, AF004900, Z50150, Z49911, F18486, AA160897, AA886424, W69654, AA524367, AA708236, AA846337, AA340577, AA573832, AA304111, H92982, AA583013, AA993608, AA047804, AA887591, AI019541, AA253870, D18378, W40828, W48532, AA945746,

10 AA925147, AI013713.

SEQ ID NO:604

U82108, AF004900, Z50150, AF035771, L48775, AF015926, AF036241, U74079, U19815, Z80233, L26338, AF058302, M24282, AF054151, U31613, H27184, R72257, H49053, AA777814, AA777937, N48381, AA117781, AA763778, AA116517, AA821504, AA871706, W30479, AA869710, AA870376, W12132, AA239009, AA137750, AA672660, W91102, AA739216, AA871767, AA087651, AA142803, AA900990, AA942825, AA892164,
 AA964990, AI028957, AI030602, AA893047.

SEQ ID NO:605

25 U82108, Z50150, AF004900, AC003685, AC002504, AC002457, Z64771, AF022933, Y11397, U41107, S82821, Z49911, Z73988, H92982, AA304111, W69654, AA573832, AA846337, AA886424, AA340577, AA583013, AA524367, F18486, AA160897, AA993608, AA708236, R72015, AA047804, W48532, W40828, D18378, AA253870, AI019541, D41796.

30

SEO ID NO:606

U11313, M75883, S52450, M55421, M75884, AF051897, S80339, M58287, X60654, M57454, M62763, M5745453, M34728, AC004659, K00915, U73444, AC005142, AC004159, M91458, D84394, AB009054, Z99297, M91457, D21160, AE000555, Z92540, X15442, U41396, Z95326, U11584, U30821, Z33185, U37541, M30487, X03154, M11317, Z99943, AC004401, Z99708, U20864, AB015477, AC004746, Z35595, Z80215, AJ229043, M17627, AF015262, AF002196, AC004768, Z81547, U41995, L36897, U41038, Z93778, AF016420, Z34799, AE000664, AA659242, AA771708, AA662425, AA771727, AA872200, AI052484, N78410,

- 40 AA815316, AA857869, AA781279, AA857652, AA781559, N22960, N30183, AA664009, N90729, AA279302, H43347, H14631, D57094, N62639, D58010, D20134, AA256445, AA164663, N78672, D56619, AA515632, AA551997, H43309, AA551782, D56709, AA704925, AA888556, D57577, F03114, AA007228, D57140, D58128, H70634, AA846663, D58347, AA617994, D56920, D57698, D57820, R35652, D57082, D58061, D57120, D57125,
- 45 AA283364, D56852, AA937827, D56836, C16276, AA283359, D57010, AA283357, T29679, D57100, AA781584, AA452761, AA102128, AA452582, R85824, Z19870, R19294, H14925,

AA781652, T81784, AA807361, H54781, AA588095, H62481, AA521141, N99975, AA908948, AA877421, R35318, AA909516, AA628322, AA683359, AA960968, N59478, M62031, AA346154, H67890, AA160940, AA404276, AA701593, AA744496, AA346159, AA588866, AA702222, AA885231, D60659, AA985969, AA710456, AA270378, AA987062,

- 5 AA987039, AA222745, AA980411, AA116764, AI042674, AA237939, AA512371, AA597138, AA146030, AA250148, AA271455, AA822085, AA277481, AA060006, AA647999, AA409774, AA727826, AA500860, AA986025, AA409893, AA617156, C88281, C86463, AI046451, C76618, AA617132, AA968323, AA423273, AI042921, C79031, AI042898, AA277564, AA986047, AA107970, AA986223, C88922, W81997, AA797756, AA562250,
- 10 AA881445, W29818, AA881830, AA060198, AA960086, W44023, W10482, AI047695, AA655196, AA738953, AA023888, AA014206, C85955, AA177230, AA671953, AA733648, AA763383, AA073872, AA170317, AA656768, AA688784, AA718634, C86134, AA980874, AI037502, AA397222, AA204225, AA921283, AA388462, AA682045, AA738625, C87067, AA066144, AA098173, AA111142, AA139069, AA162244, AA183226, AA709815,
- AA710950, AA763388, AA245126, AA153119, AA265244, AA395938, AA511462,
 AA833140, AA617004, AA799151, AA869220, AA183336, H32123, AA901345, AA942880,
 AA891692, AA942879, AA943820, A1007887, AA925866, AA859990, AA925217, T09855,
 C25635, AA956558, AA858978, AA109394, AA997238, AA216499, AA471607, W51558,
 AA842216, AA257173, AA280502, AA842069, AA283564, D33621, AA275442, AA627003,
 BA7663, 105104, AA755444, C20065, AA454430, AA627042, D64315, AA55846, D43627
- R47663, U95104, AA275444, C92065, AA454439, AA627042, D64315, AA550461, N43502, N43377, AA955403, AA257415, AA216473, AA275425, H21330, C84111, AA161551, W51626, AA925872, D43539, N21815, C93146, A1044396, N98036, AA754396, T21828, C50233, C84859, AA955653, H48206, C06628, AA945519, AA943664, C42677, AA925371, C44729, C84185, AA963072, AI010434, AI013950, N97751, AA800843, AA926358, H64223, D72917, C08524, C08811, C46650, C83852, C91163, AI046276, D26869, AA497257, C45777,
- AI012269, C84020, T00757, C40463, AA850728, AA925185, C90324, C90671.

SEO ID NO:607

- U11313, M75883, S52450, M55421, M75884, AF051897, M57453, S80339, M62763, AC004659, U73444, K00915, AB009054, AC004159, D84394, AC005142, M11317, X60654, D21160, Z92540, AE000555, M30487, AC004244, Z99943, U40948, U20864, X03154, M57454, U41396, Z81558, M58287, U37541, AC004401, U11584, U41038, Z93778,
- 35 AF015262, Z34799, L36897, U28737, AJ229043, AF002196, AF016420, Z81547, U41995, AF039042, AB015477, AC002983, X06438, AF007270, Z35595, AC004768, AA659242, AA771708, AA662425, AA771727, AA872200, AI052484, AA857869, N78410, AA815316, AA781279, N30183, AA781559, AA857652, N22960, N90729, AA279302, AA664009, D57094, H43347, AA515632, AA164663, N62639, H14631, D58010, D56709, AA704925,
- 40 AA256445, D20134, AA888556, N78672, AA551997, D56619, AA551782, H43309, D57140, AA846663, D58128, D57577, D56920, D57698, AA007228, H70634, F03114, D57082, D58347, AA617994, D58061, D57120, D57820, R35652, AA283364, D57125, D56836, D57010, C16276, D56852, AA937827, D57100, AA283359, AA283357, T29679, AA781584, AA452582, AA102128, R85824, T81784, AA452761, AA781652, R19294, Z19870,
- 45 AA807361, H14925, H54781, AA588095, H62481, AA521141, AA588866, AA346159, AA702222, H67890, AA346154, AA744496, AA404276, AA701593, H93140, N29716,

AA035332, AA666280, AA708286, H22937, AA526208, AA628322, AA908948, AI049915, H78237, C16510, AA846528, AA861646, AA356066, C88281, AA617132, AI042921, AI042674, C86463, AA617156, C76618, AA985969, AA968323, AA647999, AA271455, AA250148, AA987039, AA710456, AA986025, AA060006, AA980411, AA277481.

- 5 AA409774, AI046451, AA146030, AA759818, AA822085, AA222745, AA512371, AA597138, AA116764, AA270378, AA987062, AA237939, AA500860, AI042898, AA727826, AA423273, AA409893, C79031, W81997, AA797756, W10482, W44023, AA986223, AI047695, AA655196, AA738953, W29818, AA014206, AA516915, AA960086, AA023888, AA881830, AA060198, AA277564, AA980874, AA073872, AA763383, AA461946, AA671953,
- 10 AA111142, AA122868, AA139069, AA166200, AA833140, AA189967, AA271868, AA395938, AA511462, C80303, AA710950, AA763388, AA245126, AA881579, C88643, AA986047, AA105260, AA177230, AA255029, AA268661, AA555766, C81310, AA727103, AA960262, W65231, AA106275, AA869220, AA119053, AA086609, AA623154, AA667292, AA688784, AA546062, AA796545, W61767, AA170317, AA265244, AA183836, AA285878, A1007887, AA945519, AA925866, AA943820, H32123, AA901345, T09855, AA942880,
- A1007887, AA945519, AA925866, AA943820, H32123, AA901345, T09855, AA942880, AA925217, AA858978, AA859990, C25635, AA956558, AA441654, AA440159, AA275425, AA842069, W51626, AA539951, AA694892, N43377, AA951614, N43502, AA275442, AA951114, AA567107, AA454439, AA696740, AA949523, AA280502, AA216473, AA263396, AA735334, AA695189, AA257415, AA264633, AA735385, AA696541,
- 20 AA842216, AA439683, AA627003, AA627042, AA735477, AA201669, C92065, C84111, AA440628, AA820729, H21330, AA950141, AA538832, AA390770, AA550461, AA471607, AA216499, AA109394, AA997238, AA952273, AA875744, AA802386, AA540855, AA697030, AA275444, AA942879, AA955403, AA951929, R47663, AA264352, W51558, AA891692, AA597409, AA754396, C84859, AA956504, AI012269, C84185, H48206,
- 25 AA926358, AI046276, D72917, H64223, C83852, D26869, AA042566, C84020, AA858751, AA850728, AA925185, Z25690, N97751, C91163.

SEQ ID NO:608

30

- M75883, M75884, AF051897, M58287, X60654, M62763, M57453, M34728, M91458, U11306, U11307, U11309, U11308, M55421, S52450, M62361, U11304, U11303, U11305, X91155, L09231, M57454, M91457, U11310, Z93375, X97685, X95443, X86694, AE000746, AC004407, U41550, U12439, AP000046, U41993, Z99291, U20861, AC002351, AA343982, R84426, T53922, AA320971, F06851, W29048, AA081579, R29684, W15178, Z19683,
- AA347697, AA367017, AA099535, T26984, F06949, AA007229, T82098, AA262059, H44984, AA279352, N32373, R61157, R57993, N40832, R11575, H51179, AA279361, T40150, H60340, AA876126, N91637, H44905, AA903024, AA086072, AA192634, T19969, T63750, AA848139, H20334, W74489, AA105592, AI047408, AA073233, AA987102, AA986163,
- 40 AI046331, AA968410, AI046654, AA060637, W81808, AA620164, AA073373, W71734, AA072988, AI048998, AA199388, AA475973, W61994, AA986047, AI048828, AA231437, AI019591, AA914212, AA183999, AA726218, AA183991, AA839654, AA108330, C85192, F14816, AA817014, AA820898, C90796, AA943971, AA735035, AA943972, C60269.
- 45 SEO ID NO:609

D64005, Z47547, H14925, R97328, AA752846, AA713018.

SEQ ID NO:610

SEQ ID NO.010

5

V00662, V00710, J01415, X93334, X62996, D38112, AF054990, D50525, X93335, D38113, D38116, X93347, D38114, Y17170, Z71621, X99256, X97707, D38115, Y17174, M12298, U66061, Z70759, AF029308, X02226, U25123, X97336, U78342, X89763, X89765, U78346, U78328, U78326, U78344, U78339, U97343, M86497, V00680, U78341, U78350, Y07726, U78334, U78336, U78331, X14848, J01438, V00681, AJ001588, U78348, X97337, U78338, U783345, U783345, U78330, U78332, U87983, M55539, U78329, M86501, U78347, U97335, U78349, X72204, U97340, M86495, M86494, M35875, M86493, M86500, X88898, J01394, V00654, U78343, M86496, X63726, U97337, X79547, U97338, X61145, M86498, M35876, M35877, V00665, M86499, AJ001562, U97336, M35874, U20754, X72004, Y10524, L07095, L07096, V00711, M55541, Y11832, L35588, M55540, U97339, U97341, U97341, GA07942, AF039436, AA156195, AA837552, AA509068, AA069787, C18511, AA081175, AA809120, AA548858, AA808965, D59027, AA555222, AA548322, AA876523, AA565306, AA8550476, AA555052, AA563906, AA856781, AA714382, AA553425, AA593698, AA643360, AA555049, AA565897,

AA131338, AA180349, AA551211, AA554931, AA809137, AA714377, AA578668, AA575889, AA485302, AA548947, AA548856, C75634, AA187780, AA876475, AA595706, AA593792, AA211500, AA576595, AA554579, AA654346, AA643016, AA641259, AA642904, D51155, AA178950, AA211601, AA533073, AA548235, D52021, AA180957, AA548852, AA837570, AA602770, AA652684, AA216525, D56338, AA554597, AA548854,

25 AA554106, AA554734, AA595814, AA193227, AA868519, AA564005, AA551189, AA164534, AA548840, AA553534, AA608673, AA563954, AA553856, AA578871, AA548843, AA643290, AA642909, AA565762, AA54827, D51828, AA582730, AA562762, AA595777, AA826894, AA643162, AA812395, AA928697, AA071006, AA575827, AA595579, AA838283, D51071, AA682021, AA682016, AA692759, AA571129, C78436,

- AA530592, C79662, C76503, C76087, AA615654, AA140493, AA647235, C76769,
 AA275856, AA271034, AA060850, AA879576, AA422814, AA162295, AA427325,
 AA562460, AA563249, C78279, AA445635, AA617320, AA445629, AA619495, AA560394,
 AA473166, AA790625, C78374, C76380, AA432943, AA666941, C78152, AA575672,
 AA794847, AA547490, AA562097, AA207627, AA275855, AA207706, C76177, AA607034,
 A1049354, AA276226, AA399915, AA414310, C79665, C76404, AA546599, C78371, C80274,
 C78608, AA473191, C80311, AA434707, AA645958, AA269722, C78931, AA473180,
 C78649, C78917, C89299, C78364, C80116, C76461, AA271787, C78816, C79336.
- C79110, AA589968, C76191, C78057, C78595, C76403, C76416, C77792, AA529696, C79492, AA445286, AA445340, AA518316, C89190, C79398, AA286097, AA760119, AA666554, AA067991, C78315, C79321, W96641, AA943683, AA945827, AA851795, AA945976, C06573, AA946045, AA799441, A61010222, AA944069, R46896, AI007687, AI012346, AA943678, C06883, AA012700, AA946037, AJ007466, AI009598, AI011357, X93284, Z84166, C82602, C83458, X91720, AI014135, C06615, C06507, AA545852,

AA437980, C79978, C76341, C77782, C76455, C78313, C76976, AA241045, C80825,

45 AA514138, AA052035, AA563531, AA007732, AA253513, AA246076, AA991136, AA022351, AA570877, AA052036, AA246146, AA231984, AA848873, AA991145,

30

AA057913, AA022403, AI013652, R86631, W66514, H91497, AA567224, C84082, AA555604, AA695472, C90646, AA696177, AA605789, AA696325, AA943399, AA802879, AA943838, AA957048, AA514149, AA550030, AA819881.

SEQ ID NO:611

5

X81198, S74341, AC005148, S63823, X61457, X53820, Z70680, U32692, D84394, AF019376, Z99289, Z46793, L29789, AA412680, AA206349, AA102578, AA293170, AI025067, AA705915, AA165600, AA527537, AA705055, AA192464, AA506760, N24749, AA047461, AA088764, N26132, AI040426, N32156, N32947, AA688242, H99310, AA434593, AI002397, AA993720, AA707731, AA422132, AA804436, AA719418, AA928305, AI024105, R76982, W15326, H94333, N21273, W42458, AA243440, N42618, AA856562, W85810, H99597, N67805, AA808672, H98545, AA599213, AA811624, AA714152, H88780, H88997, AA055972, N94593, AA491237, AA788790, T99642, AA598401, AA026110, H96031, Z40496, H07091, AA081953, R36241, AI022977, AA554666, R21824, R08208, N92709, F04702, H24774, R80774, R31914, T34041, R80765, R65607, AA047395, AA088763, W20326, AA806861, AA612944, R39589, AA380341, H24822, AA165481, AA029610. T99056, H99596, AA525270, AA826917, AA340875, R32597, R80764, AA367928, AA304895, AA292732, AA405032, N59435, AA654942, AA845488, H27096, W69173, AA495982, AA587836, AA960628, AA068567, AA691739, AA067202, AA682061. AA544759, AA518283, AA189768, C89374, AA271271, D19224, AA930673, AA140370, AI046865, AA471738, AI046836, AA959166, AA711362, AA265873, AI035607, AA691975, AA986088, AA183370, AA222648, AA265273, AI046485, AA059545, AA178621, W91579, AA915644, AA153692, AA237206, AA268820, AA964145, AA892567, AI010488, AA946440, AI011123, AI013192, AA819757, AA963606, AA945046, AA963929, H33366, AA818325, AA720308, C89916, AA406834, AA687079, AA963948, AA257371, AI030119, AA509034, AA893844, AA257246, AA430867, AA454454, N43424, AA114484, AI030346, AA430886,

SEQ ID NO:612

C88418, AA123512, AA842513, AI029667, AA140770.

- X81198, S74341, U32692, D84394, Z70680, AF019376, L29789, Z46793, Z99289, AA412680, 5 AA102578, AA206349, AA293170, A1025067, AA705915, AA527537, AA705055, AA192464, AA165600, AA506760, N24749, N26132, AA047461, AI040426, N32947, AA688242, AA088764, AI002397, AA993720, AA707731, AA422132, H99310, N32156, AA804436, AA928305, AA719418, AI024105, W15326, H94333, W42458, N21273, AA856562, AA434593, AA243440, W85810, H99597, N67805, R76982, AA808672, N42618, AA599213,
- 40 H98545, AA811624, H88780, H88997, AA055972, AA491237, AA788790, N94593, AA598401, T99642, H07091, AI022977, H96031, AA714152, R36241, R21824, Z40496, N92709, AA026110, F04702, R08208, R80774, T34041, H24774, R31914, AA554666, R80765, R65607, R39589, AA081953, AA806861, AA612944, AA047395, AA0887635, T99056, AA380341, H24822, AA525270, AA165481, W20326, AA826917, H99596, AA029610,
- 45 AA340875, R32597, AA367928, AA495982, AA587836, AA570477, AA425045, AA845488, H27096, N59435, AA631753, AA654942, W69173, AA677089, AA068567, AA960628,

AA518283, AA544759, AA682061, AA067202, AA691739, AA189768, C89374, AA271271, AA140370, D19224, AA930673, AA471738, AI046836, AA959166, AA265873, AI046865, AA711362, AI035607, AA691975, AA986088, AA183370, AA153692, AA222648, AA178621, AA059545, AA065949, AA963929, AA892567, AA819757, AI013192, AA945046, AI011123, AI010488, AA963606, AA946440, AA964145, H33366, AA818325, AA720308, C89916, AA893844, AA430867, AI030346, AI029667, AA406834, AA963948, AA687079, AI030119,

SEQ ID NO:613

10

X81198, AA412680, AA102578, AA206349, A1025067, AA293170, AA434593, AA707731, AA705055, W42458, AA705915, AA719418, AA993720, AA527537, AA047461, AA165600, A1002397, AI040426, AA506760, H94333, AA192464, AI024105, Y26132, AA928305, AA804436, H88997, AA856562, AA422132, AA688242, N32947, N24749, W15326, AA088764, H98545, AA243440, H99310, AA599213, AA808672, H99597, R76982, N21273, N67805, AA491237, AA055972, AA788790, AA598401, AA811624, AA026110, T99642, N21878, N32156, Z40496, N42618, W85810, A1022977, H07091, AA714152, H96031, F04702, AA806861, N92709, N94593, R21824, R80765, R36241, R08208, T34041, AA554666, R80774, W20326, H24774, AA088763, AA380341, AA612944, AA081953, R31914, H24822, R65607, AA826917, R39589, H99596, T99056, AA525270, AA047395, AA029610, R80764, AA292732, AA405032, R32597, AA165481, AA340875, AA367928, R80773.

SEO ID NO:613

X81198, AA412680, AA102578, AA206349, A1025067, AA293170, AA434593, AA707731, AA705055, W42458, AA705915, AA719418, AA993720, AA527537, AA047461, AA165600, A1002397, A1040426, AA506760, H94333, AA192464, A1024105, N26132, AA928305, AA804436, H88997, AA856562, AA422132, AA688242, N32947, N24749, W15326, AA088764, H98545, AA243440, H99310, AA599213, AA808672, H99597, R76982, N21273, N67805, AA491237, AA055972, AA788790, AA598401, AA811624, AA026110, T99642, H88780, N32156, Z40496, N42618, W85810, A1022977, H07091, AA714152, H96031, F04702, AA806861, N92709, N94593, R21824, R80765, R36241, R08208, T34041, AA554666, R80774, W20326, H24774, AA088763, AA380341, AA612944, AA081953, R31914, H24822, R65607, AA826917, R39589, H99596, T99056, AA525270, AA047395, AA029610, R80764, AA292732, AA405032, R32597, AA165481, AA340875, AA367928, R80773, D19224, AA691739, AA518283, AA930673, AA54759, AA271271, AA711362, AA068567, AA960628, AA682061, AA189768, AA067202, AA798143, AA543158, H33366, AA819757, AI013192, AI011123, AA963606, AA963929, AA945046, AA946440, AI010488, AA892567, AA964145, AA818325, AA842436.

U28831, Z78541, Z85996, U33275, M10134, D50601, X83287, U64608, S65207, Z49286, U53180, Z49285, Z97348, D13663, AC004476, AC004742, AF001308, T10311, AA249750, N62051, AA088359, AA069486, N56023, AA553416, AA446279, C15980, W20230, AA426231, R01148, AA100935, AA192179, AA279613, AA082559, AA278941, N33323,

- 5 AA043139, N47018, AA836884, W87285, C18639, AA591957, AA033113, AA212049, C85811, AA770861, AA798281, AA153484, AA274657, AA759924, AA259507, W96875, AA189685, AA168119, AA797640, AA145772, W82209, AA267994, AA986113, AA606626, AA249900, AA590986, W96872, AA725984, AI008019, AA495219, AA848647, AI011707, AA697700, N65009, AA392406, AA568062, D46427, AA940906, T38767, AA441016, T3874, AA810900, AA59086, AA99086, AA99086, T38767, AA441016, T3874, AA810809, AA99086, T38767, AA441016, T3874, AA810809, AA99086, T38767, AA941076, AA970869, T38767, AA970876, AA9
- 10 T15167, AA819399, AA859550, AA899046, T38774, AA799503, T38296, AA874742.

SEQ ID NO:615

U28831, AF016686, Z85996, Z93928, AA553416, R01148, C15980, AA088359, W20230, T10311, AA069486, AA446279, AA100935, N56023, AA192179, AA426231, AA082559, AA279613, AA777564, AA621640, A1004622, AA707143, H88829, W52290, H88830, AA256374, AA766135, AA677539, Z78318, T95031, AA889510, A1022486, AA628783, N77543, H89948, A1041765, W45423, AA746269, W02557, AA736845, W48645, AA043693, AA451881, AA747909, A1018470, AA101081, F10259, N51242, AA954779, R71456, AA267694, AA204101, AA873929, A1019694, W53762, W48242, AA120253, AI047063, C92081, C68661, C92904.

25 SEQ ID NO:616

U28831, Z93928, AC002454, AC004613, Z48621, Z82189, AC005246, AC004547, AA553416, W20230, AA100935, AA426231, R01148, C15980, AA088359, N56023, T10311, AA446279, AA082559, AA192179, AA069486, AA279613, AA932327, AA632516, AI004622, AA456194, AI014425, H38522, AI015903, T06689, AA329764, AA189831, AA546824, AA571196, W14631, AA204101, W62599, AA120253, W48242, W36391, W11390, AA755750, AA267694, C80606, AA038481, AI019694, W10589, W00109, AA956040, C23325, AI012839, AI011972, F23049, W63449.

35 SEO ID NO:617

U57645, S78825, D13890, S78986, X77956, D13889, U43884, M31885, L23148, M86708, D10862, D13891, M97796, M69293, M96843, D10863, AF049135, AF068831, AF007414, 40 Y08368, M31902, M32636, M31901, U16153, X75018, AJ001972, Y07958, U28368, AB007000, S76880, D10879, AF003626, X63841, U03771, AC002502, AF074603, L17131, U45285, AA402148, AA402534, W94501, AA434545, AA773775, AA442730, AA037144, W78892, H67415, H63164, H79454, W69973, R28063, W01825, AA158482, T27389, AA402991, AA100974, W05112, AA158304, AA029841, AA085496, AA635758, R64428, AA856603, N80544, AA846831, D30824, AA293530, N92465, T29348, H95030, N99516, H00251, AA927561, W17156, AI038013, W86560, N55317, AA977528, R96317, AA856639,

- H10512, H70169, AA315445, T19443, N39712, AA248350, W49729, AA460804, AA317953, W38998, AA305303, H57072, AA244254, W96449, D52725, D52446, AA352083, H54369, AA846298, AI038365, D52440, AI031740, W56034, AA729180, T99883, AA855096, N68174, AA094834, AA732823, AA553724, AA968795, AA449538, W37258, W52842, W96546,
- 5 R12658, N80633, AA948496, AA582212, AA244044, T50950, AA033993, R48599, AA151620, AA847016, H51908, AA708137, AA100975, N26622, W38807, AA375532, H57073, AA996089, AA812456, H54291, W20315, H81838, R48701, AA537473, AA104954, AA015127, AA000275, AA245114, AA980126, AA272632, AA611580, AA002655, AA416075, AI048710, AA221040, W98215, W87099, AA020521, AA855942, AA272633.
- 10 AA272634, AA015170, AA028385, W56997, AA272635, W08372, AA958648, AA002977, W08321, D21793, AA060627, AA762488, AA036390, AA272636, AA066918, AA982863, AA469536, AA563039, W70570, W18043, AA277313, AA105408, AA162208, AA290412, W83211, AA290337, AA646282, AA123373, AA606850, AA109195, AA030265, C88707, AA059598, AA655741, AA684307, AA240422, C80022, W14857, AA799182, AA272637, AA2701, AA864051, A4070763, AA763134, AA10720, AA64615, AA070763, AA763134, AA10770, AA64615, AA70770, AA64615, AA707076, AA767076, AA7670
- 15 AA432701, AA869451, AI020763, AA763343, AA107820, AA636155, AA840196, AA066140, AA692865, AA880663, AA409757, AA183775, AA591153, AA896703, AA870106, AA182168, AA793152, AA797180, W36455, AA718564, AA790952, AA823725, AA966929, AA980653, AA980853, W29518, W30048, W30258, AA007990, AA389171, AA537474, AA717592, AA940427, AA734505, AA790940, W82367, AA670576, AA450660, AA543465,
- 20 AA823194, AA881164, AA939354, C06777, AI009595, AA819539, H35161, AA686930, AA685852, AA851735, AA391523, AA439247, AA802644, AA567404, AI044710, AI007907, AI030517, AA997043, AA818860, AA892021, AI012052, AA497329, AA962852, C19681, D75832, D49273, AA892514, D40501, D39794, AA439218, D15218, AA754460, D49340, C29032, D48067, N96093, T02111, D48856, D48862, AA957930, D41218, C72718,
- 25 AA695311, AA943106, N38392, AA892429, D36870, AA943025, H36135, D15293, T75801, D24608, C91657, D42380, D46645, AA979476, AA925085, D38800.

SEQ ID NO:618

- U57645, S78825, X77956, D13889, M31885, N40205, N92465, R42854, AA776956, AA962658, AA977528, AA846831, AA098812, AA100975, AA402991, AA158021, AA564627, W57694, N68104, N70771, AA457158, AA582212, AA158383, AA039846, AA987457, AA936837, AA995770, AA708137, AA635758, AA856603, AA029307, W17156, AA649880, AA160925, AA927561, AA582644, W84666, R63818, AA605016, W86561, H13207, AA219438, AA502273, W94616, N71486, AA427914, N59802, W69974, AI038013,
- H13207, AA219438, AA502273, W94616, N71486, AA427914, N59802, W69974, AI038013, H67366, AA293531, AI031740, AA628690, N75411, AA812347, R23896, AA632337, T23967, AA932541, H79339, T29348, H63080, AA826698, AA678110, D12428, H95093, AA911961, AA060424, AA407767, C82597, C83453, AA944852, AA900869, AI009595, AA899322, AA819539, AI012052, AA851735.

SEQ ID NO:619

45 M31222, X52078, M31523, M24405, M31522, M95586, M24404, X62323, X54549, U10993, X17500, D16631, D16632, D16635, S77532, M65214, AL021978, AB002454, AB002461,

30

AC004021, X89416, D29919, U55276, M76432, U11508, U25174, AA251176, AI027246, AA906873, AA284826, AI023158, AA768906, AA864713, AA761788, AA992325, AA732149, AA825933, AA741143, AA907591, AA811721, AA804490, AA825583, AA827727, AA831462, AA284598, AA485146, AA521374, AA888764, AA481960, AA504502,

- 5 AA811027, AA482075, AA026644, AA482073, AA065053, AA481955, AA811585, AA883524, AA261863, R71755, AA251379, R72653, R54960, C18205, AA350221, AA026102, AA283944, AA251378, AA639838, AA649316, AA235661, AA258188, AA284958, AA459409, AA736653, AA243623, AA448293, AA563669, AA748889, AA534698, AA714643, R46520, AA971973, AA458915, AA211837, AA291511, N70653,
- 10 AA977695, AA890718, AA994039, AA857742, AA758651, H28074, R77759, N92448, H61187, W96188, H24664, AI032639, AA811584, AA534806, T79941, T64887, H55980, AA936636, AI039325, N54551, R60234, AA179066, H52813, AI049635, AI052182, T83352, AA612744, AA811560, R45213, AA977286, AA236318, Z38163, AA612871, AA876062, AA521104, AA938322, AA808108, AA103359, AA867031, AA124519, AA117566, AA492609, AA509762, AA874295, AA108960, AA161906, AA871765, AA118906
- 5 AA492609, AA509762, AA874295, AA108960, AA161906, AA871765, AA118906, AA241295, AI046920, AA274509, AA925168, AA949467, AA538880, AI008604, AA539675, AA894145, AA816983, AA439550, AA944531, AA942050, AA950297, AA949603, AA735910, AA539403, AA201573.

SEQ ID NO:620

M31523, M65214, M31222, K01241, M24164, D31955, AA829266, T47792, AA442932, AA176379, AA758065, AA613989, AA686357, H52644, AA7788849, AA459634, AA514584, R77848, AA292521, AA285115, N79022, H62090, R51355, AA431495, R15325, H61535, AA608615, H29078, W31285, AA219678, AA210757, AA075254, AA076047, H73728, AA050679, AA387697, AA265653, AA254354, AA396011, W83540, AA270595, AA408400, AA250138, AA710652, AA674377, AA978497, AA494742, AA940591, AA735656, A1008078, AA739912, AA191996, AA901627, A1045492.

- Z48784, U41992, AA703998, AA044900, H98974, AA716497, AA491463, AA599783, AA031932, AA600033, AA044689, AA548128, AA669937, AA173933, AA627069, AI041635, H97549, H97601, AA186359, W72045, AA032050, AA137262, AA026782, W92629, W78218, AA088246, AA661793, W46845, AA595373, W94840, W58303, N23437, N79437, W63570, W46494, AA583657, AA593009, AA983246, AA788950, H97340, N33105, H97416, N34381, AA147651, W46790, N67716, W96120, W94418, T47507, AA961557, AA599353, AA987381,
- 40 AA565505, AI025353, W81572, AA888923, W42793, W58194, AA903702, AA480682, T33491, W74255, W52215, AA722567, W76397, W51762, W96121, W52141, AA588438, AA664567, N70652, AA025046, AA128494, R87166, AA59854, W46918, H50538, AA666225, R95744, AA025047, AA853933, R56693, R39109, AA853321, AA599400, AA886647, C00827, T90854, N73609, Z38867, W52070, T54372, AA987862, N94338, R823271, AA3090, A660466, N00867, T70872, W15224, P20272, AA5987862
- 45 R83373, AA719902, AA501650, N68056, T62853, W17326, R07697, R81056, C85873, AA180654, C94851, AA293962, AA440719, AA941072.

SEQ ID NO:622

AF012072, AB003362, AF073830, U83251, AA774760, AA293841, AA425125, W40521, M85634, AA402442, AA179025, N34260, N75161, N85658, R54165, N34263, AA669349, N39869, AA044583, Al039716, Al041216, C04504, AA033569, AA762442, AA142665, AA789817, AA476083, AA623031, AA623053, AA839236, AA871801, C61324, C63188, AA676129, AA257810.

10

SEQ ID NO:623

Z48432, AF005681, AF005675, AF005670, AF039057, AF005697, Z74071, Z74072, AF005683, AF005679, AF005668, AF005674, AC000066, AC003009, U29157, Z68296, AC004763, U84099, AF005671, AF005674, AC000066, AC003009, U29157, Z68296, AC004763, U84099, AF005671, AF005678, AF005684, AF005685, AF030884, AF015454, U62943, L05514, AB008681, AF005672, AC004532, L04132, Z68748, AI014367, N92469, C15377, AA134568, W05794, W79550, W17157, AA468635, R50684, N25822, AA6656666, AI039626, AA134567, R50683, AA437747, AA491028, Z26996, N44557, C21162, AA425182, N75058, AA910355, AA147590, AA095103, AA730099, AA011174, AA610357, AA527291, AA658171, AA211545, AA059268, AA579633, AA173380, H50624, AI024443, R73685, AA176799, AA010443, AA713681, AA521194, H01346, H56415, AA613629, AA767888, H89553, AA447947, AA612937, AA312008, AA604164, AI000693, H93075, AA705169, AA336339, AA563630, AI017605, AA776703, AA861544, AA102784, AA509441, AA655398, C86651, W61392, AA210375, AA002277, W61394, AA840592, AA822617, AI019204, R75462, AA008667, W30394, AA254210, AA103273, AA172736, AA261254, AA839128, AA762524, AA033419, AA014557, AA212904, AA080224, AA409974, AA139181, AA881971, AI048331,

AF012072, Z34918, AF012088, D12686, L22090, AF051934, AJ229042, U84100, AF055066,

6 AA244839, AA530597, AA104643, AA152553, AA174577, AA038437, AA608039, AA048344, AA451453, AA271829, AA762267, AA762288, AA140341, AA982351, AA608321, C76476, AA177406, AA254248, AA397202, AA615429, AA646552, AI048391, AA930467, AA197396, AA216884, AA960279, AA914035, W12213, AA067097, C76067, AA821737, D18988, AA124733, C79956, C85907, AA794425, AA981654, W35735,

AA538296, AA959429, AA139372, AA538203, W29456, AA538068, AA271264, AA209088.

5 AA589522, AA267923, C76467, AA980886, C76479, AA123430, AA125454, AA560245, AA893170, U30849, C54341, C11247, D33256, AA624966, AA658642, AA720446, AA495115, T18112, AA999529, AA241425, R82900, C36016, AA925357, AA941899, AA800217. AA241554.

40

SEQ ID NO:624

U67547, U49829, AL009028, L01943, AC003078, AF016669, Z70780, X69920, AC005270, L00587, N27428, N91105, N63752, R16611, AA705364, W28305, A1024323, A1020141, AA793006, AA692687, A1045505, D15159, AA247041, C94134.

SEQ ID NO:625

L16782, L11910, AC002070, X87344, AC004613, AC005178, AC003085, Z97629, D87022, Z97206, Z70050, Z73986, AC004104, Z95624, L38952, AF001295, Z81365, Z73967, Z80900,

- 5 AC002081, AC004038, Z78022, AC004388, Z93403, AC003960, AC004020, Z98753, AE000660, Z82170, AC002526, Z69367, AB009801, AD000685, AC000054, AC002404, AC004103, AC002366, AF013593, AC004457, AC002990, AC004383, Z82205, Z86063, U80460, AC002075, AC005192, AC005092, AC003014, AJ001981, AC003049, AC002076, AL022322, AL008724, AC004478, Z98255, AL009181, Z98880, AC003661, U69570,
- AC003010, Z95124, AC004009, AC002457, Z99289, AC003667, AC004087, Z96810, Z82203, AL008709, AC004069, AC002463, AC002072, AC002448, AP000016, D14034, AC002524, Z68746, Z70272, AL009173, AL022148, Z82975, AC000363, AC004025, AC000362, Z86064, AL022321, AC003080, Z69906, U82696, AF045555, AC002541, Z84719, AC000062, Z75745, AL021812, U95741, AC003969, Z68868, AL008710, Z82194, AI041010, AA742995,
- AA989031, AA811871, AA205874, AA767325, AA808679, AA769899, AA972817, H20890,
 R17891, AA831154, F03337, AA581098, R60505, AA169205, AA350198, F03291, AA782346,
 AA463216, AA516148, R22981, AA534745, N62349, R52631, R55681, AA993625,
 AA096300, R40188, N36266, R61889, N67068, H41181, F04195, W21339, AA551324,
 Z19907, AA723783, AA551665, AA814417, AA759193, AA468999, AA808697, AA687732,
 AA694387, N57373, AA992391, C16407, AA600194, AA618321, AA883885, AA480504.
- 20 AA694387, N57373, AA992391, C16407, AA600134, AA618321, AA683885, AA480304, AA69256, AA004414, T40368, R31339, AA618138, W99308, AA994725, AA701082, AA514439, AA309494, AA631188, A1002414, T06870, AA935161, N93679, AA535617, AA677371, R31801, N52300, AA746938, AA855047, H97762, R37790, T94417, A1024848, AA128313, R31228, AA934093, F00123, H96567, AA939046, H74023, H53949, R70567,
- 25 H19725, AA984315, H49695, R83342, AA873726, AA280674, AA926782, R73502, AA884912, H97735, R23182, AA525450, AA525461, AA876318, AA207521, AI046801, AA756172, AA636494, AA879494, AA881851, AA38727, AA254249, AA636178, AA636179, AA727949, AA899333, AA875010, AA923974, AA751607, C94174, C90750, AA923930, C25513. AA856222, AA547868, AA550436.

SEO ID NO:626

- D32053, D31890, Z31711, L36832, AE000646, AC004741, Z86061, U41105, Z11508, U24186, 5 X85117, AL022099, Z11507, AA573283, AA614334, AA662444, AA614337, AA057672, AA703991, AA630704, AA564251, AA780600, AI041024, AA704099, AA599314, AA714642, AA425858, AA490053, AA446904, AA599834, AA622340, W93690, AA521031, AA583419, AI039385, AA582748, AA759087, AA593700, AA602650, AA8542428, AA736396, AA954213, N70800, AA758504, AA568883, AA977448, AA151845, AA574018, AA588070, AA099697.
- 40 AA025163, AI002294, AA086271, AA985162, AA970759, AA025134, T69945, N54535, AA489715, N50552, AA779791, AA826636, AA665448, AA621215, AA136638, AA187940, AA410502, F19177, AA810122, N55561, W22544, AA570143, R43913, AA431976, AA639540, F02808, T15632, AA706355, AA157319, AA765674, AA425264, AA704403, H62843, AA225489, AA250893, R01261, AA486374, AA714876, H05288, H91283, R43186,
- 45 AA219436, R43187, W93742, H83409, AA729526, T85095, AA076288, T28841, H68493, H05831, AA974496, AA908817, AA486220, N50606, AA461541, AA443856, AA621748,

AA976735, AA826269, AA037797, H62963, AA503390, AA209876, W08610, AA692247. AA543220, AA692131, AA422603, AA606653, AA475557, AA606664, AA756724, AA388183, AA645501, AA120029, AA727543, AA982821, AA575222, W77297, AA815798. AA896112. AA221158, AA474923, AA171278, AA795587, AI047220, AA474983, AA839217,

- 5 AA105493, AA518173, AA517714, AA124966, C78670, AA689746, AA407939, AA895424. AA437599, AA458399, AA030560, AA030489, W80107, W48258, AA144352, AA004176. AA615776, R75143, AA466510, W13581, AA499866, AA048392, AA041806, W97014, AA546598, AA793148, W97582, W77362, AI036895, AA183698, AA172814, AA734263. AA863778, AA920734, AA892250, C06762, AA963227, Z81273, AA926135, AA606207.
- 10 C30878, D64256, C11212, D66838, C36812, Z46534, AA952462, T01063, C62825, C82691. C83547, C11135, C35400, C36191, C37922, C52379, C53002, C53210, D65094, C30013, D65326, T38438, D35865, D67867, D36626, D34352, D66537, AA859646.

15 SEO ID NO:627

D26549, X78479, Y13971, U04354, X65371, J03781, X65372, X60648, X66975, X62006, X74565, X93009, X60790, X52101, X60789, U80441, X13319, AL008720, M97227, D26549, X78479, Y13971, U04354, X65371, J03781, X65372, X60648, X66975, X62006, X74565, X93009, X60790, X52101, X60789, U80441, X13319, AL008720, M97227, W74992. AA691889, W80100, AA543962, AA239612, AA067051, AA510839, AA880330, AA103223.

AA032335, AA241020, AA472546, AA140271, AA624932, F14654, C67840, T04745, T45717. R64741, AA391093, AA392664, U74156, R64841, T43199, L33593, AA264205, T44358, AA438301, R90252, T46026, R65202, T45716, T43447, T43329, AA391723, R30497, N65841. AA979157, AA540501, H76846, D24187, C07146, AA660623, C68663.

SEO ID NO:628

- AC002300, AC004668, Z97180, AP000045, AC004517, AC003663, U91328, U91323, D38524, AC004486, AC004381, AC004241, AP000018, AC004638, AC003077, AC000372, AC005251, Z73358, AC002297, Z97195, AC002069, AL009172, Z97181, AC004551, Z75890, Z98750, AC000403, AF006501, AC004231, AC003043, AC002451, AC003108, AC002504, Z69722. AC002091, U85195, D87675, AC002531, AE000658, AC002312, Z97352, AC000085,
- AC003002, U52112, Z82203, Z83732, AC002477, AC002558, AC002464, Z99715, AC000094. AC000379, AC005191, AL021939, L78810, AC003006, U62292, AC004045, AC004216. AC002325, AP000009, AC002115, AL020991, Z83838, AF064862, AC003010, AC004593. Z83821, AF038458, AC003098, Z49235, U63721, D83253, AC000120, AC004097, Z68325, AC002468, D86995, Z94802, AF053356, Z84720, AF001551, AC005152, AL022165,
- 40 AC005255, AC004492, AC002366, M10612, AC004602, AC000092, Z93021, AL022150, AC004525, Z82171, AL021366, AP000039, AC004685, Z97184, Z46936, AC002310. AA654529, AA179516, AA180257, T57755, T25705, AI038547, AA349493, W60354, N63618. AA443610, AA404619, AA143418, H88124, F01116, AA099289, AA828045, AA427421. AA621376, AA297135, AA831471, D44899, N29105, AA244421, AA946641, AA702717.
- 45 AA147768, AA664126, AA486786, T09219, H92092, AA020943, AA282820, T94686. AA345202, W01475, AA773547, AA083003, AA485720, AA301608, AA037725, AA604601,

AA809787, AA634547, H81602, AA309341, T71474, AA528554, AA190594, AA731008, AA743445, H49231, H48748, AA491681, AA613761, C18590, T46998, AA102054, N57681, AA7078221, AA948726, F00212, AI051670, AA464887, AA282856, H47736, AA133568, AA551181, AA713768, R86114, AA458534, AA601728, AA715850, AA890235, AA192640,

5 AA568198, H66037, AA258216, AA507612, AA112924, AA568747, H55779, AA002078, AA991512, AA171907, AA582077, AA525464, AA648840, AA788904, AA916168, AA531580, AA613232, AA354123, AA570797, AA826223, AA729755, AA019973, AA994233, AA644347, H53109, AA021354, AA517646, AA516629, AA516955, AA474026, AA823826, W64166, AA930142, AA198601, AA921442, AA537628, AA550283, Z69957, A1044039, H39426, H39321, C23823, C93174, H39330.

SEQ ID NO:629

X78479, D26549, U04354, Y13971, AF059486, AF041448, J04953, AF041449, AP000003, AB009484, Z29534, Z68104, X13871, U31699, X04412, X68039, D16513, U55045, X98992, AE001101, D10444, AA173831, AA366630, AA188584, R15617, N98954, AA991330, AA855151, AA612690, H42803, AA994947, AA994943, H26306, W45721, AA019754, AA292928, AA743326, AA991699, AA017180, AA700488, AA743280, AA782612, N91409, H14692, R85933, H86532, H86580, AA490729, AA522529, D25700, AA995943, AA472387, AA762354, AA562254, W54664, AA473866, AA462522, AA511598, AA409040, AA592243, AA555737, W98896, AA667740, W42118, W29218, W98220, AA000407, A4423745, AA674212, AA212842, AA880506, AA140271, AA562384, AA419868, AA544004, AA655579, AA839472, D19245, AA399939, AA178174, AA104840, AA821286, AA864106, AA16220, AA362267, AA616786, A01774, AA96628, AA108800, AA62200, AA20200, AA202

25 AA795939, AA222567, AA616785, AI019774, AA896528, AA198892, AA624292, AI037083, AA080054, AA403711, AA589362, AA896865, AA470245, W18039, F14654, F13580, D47825, D15888, AA951952, AA996847, C11309, C31524, C37339, C37719, H35806, U31300.

30

SEQ ID NO:630

D26549, X78479, U04354, Y13971, AL009172, AC002310, U80017, U62292, U63721, U91323, U14573, AC002351, U52111, M63796, AC003690, L78810, AC003687, Z95115, Y10196, AC004491, AF001550, Z98950, AC004222, AC005261, AC000025, AC004638, AC004383, M26434, AC004659, AC003982, AC002504, AL021546, AF030876, AF031078, AC004623, AC004448, AC000118, Z54246, AC002400, Z97352, AC003043, AF001549, AC000085, AF029308, Z83822, AC004685, AP000047, Z47066, AC003108, AJ003147, U91318, U91528, U95742, AF038458, AC002110, AC004755, AC004699, AC004031,

- 40 AC005190, AC004770, AD000092, U14574, AC003103, Z81369, AC002425, AL021939, AC004447, AL021878, Z86000, Z82201, AC002312, AC002476, AC002430, AC005189, AC0044752, L47234, AC000003, AC002073, Z74617, AE000658, Z94801, U85195, AC004152, Z84480, AL008636, AL021940, AC001228, AL009181, Z79996, U91326, AC002300, Z99570, D86995, AF003529, AL008725, AC002996, U47924, AC000045, AC005202, AL022162, AL024529, TS7755, AA180257, AA179516, AA180256, AA664126, BO2640, AA502752
- 45 AA654529, T57755, AA180257, AA179516, AA180256, AA664126, R92640, AA593752, AA342681, AA613761, AA503019, R98218, AA810837, H53109, AA658934, AA593828,

AA640617, H68343, AI031759, AA745524, AA829044, AA947369, F17537, AA729755, AI028510, AA992126, AA122223, T03576, D58782, N64587, H62524, AA297666, AA984920, AA152253, AA655005, R23873, AA683069, AA262752, AA779783, AA525331, AA837597, AA614254, AA230025, AA808780, AA224889, N90460, AA526542, AA621381, AA224463, AA071776, N73046, AA630535, T57767, AA180857, N72032, AA401681, H71679

- 5 AA077776, N23046, AA630535, T57767, AA180857, N22032, AA491681, H71678, AA984187, AA535216, H15241, AA664604, AA448221, AA054170, AA558404, D44899, AA846014, AA059369, AA604515, AA708021, AA653713, AA610255, W68328, AA021354, N58329, F02412, AA458534, AA112924, AA703818, AA621720, AA757406, N78600, AI002952, AA564642, AA668421, AA632907, AA468975, H85383, AI038304, AA463590,
- 10 AA347426, AA228442, AA515631, AA502498, T15977, AA133568, AA719433, AA601327, H29914, AA988600, AA405798, C88111, W64166, AA823826, W51648, AA501297, AA474026, AA516955, AA516629, AA517646, AA501217, AA501128, C87922, W62377, AA414764, AA863851, C86532, W64884, AA839894, W61986, AA544053, AA163924, AA863837, AA990245, AA638449, AA560402, AA717794, W97167, AA939976, AA030390, AA920656, AA265602, AA242102, AA517461, AA138366, AA049041, AA253992, AA216836, AA138380, AA138372, AA712062, AA501262, AA124697, AA638888
- AA590502, AA240430, AA561642, AA476035, AA717921, AA250237, AA267021, AA671212, AA073320, AA276812, W10838, AI048072, C87438, AA199111, C87864, AA199424, AA199420, AA028411, AA184625, C79718, AA726578, AA670662, AA397113, 20 AA386877, W97045, W97935, AA008153, W18022, C77490, AA260786, AA409489, AA407868, W77222, AA386879, W18014, AA163505, AA067993, W82457, AA645726,
- C85347, W14672, AA522152, AA200484, AA271588, AA572175, AA795999, AA271536, AA030201, C88193, AA119993, AA395985, AA959908, AA266467, W65543, AA209694, AA270169, AI044039, AA550283, AA107123, H39321, H39426, AA923995, H39328, H39389, Z69957, W06387, A1008183, AA894110, H39351, D85806, H33967, AA874831, AA859718, Z36495, AA893806, AA942712, AI028965, AI009485, AA998556, AA817848, AA800974, AA924449, AA925125, AA818876, H31489, AA800963, AI009626, AA83994, AA859010.
- H39330, AA850898, H33511, AI012741, AA618974, AA979650, AI029815, AA944790, AA859198, AA925965, C43475, AA996923, AA858572, AA550596, AA891642, C44355, AA957108, AA942692, AA859214, AI044945, AA817797, AA943379, AI045812, H33071, AA964244, AA849868, AI045480, AA799436, AI009418, AA799649, AI044609, AA849562, AA892292, AA946046, AI029897, AA658796, AA800219, AA891712, AA900964, N38652,
- AA892292, AA946046, Al029897, AA658796, AA800219, AA891712, AA900964, N38652, AA799356, AA819525, AA899688, Al030084, AA943060, AA924367, L38123, AA892418, Al008029, AA900020, H39329, Al008765, AA056877, AA944220, AA892448, N41097.

- Y14443, AJ003147, U09413, X78925, AC005261, X07290, AF031656, L20450, AF027139,

 40 X84801, U37263, M88359, U37251, X79828, AC004696, AL022393, U78722, X52343,

 M77171, X17617, M36146, X16281, U29512, AC003682, M77173, M15709, D10632,

 AC004232, U60763, X64413, U09367, L15309, Y00850, D88827, X89264, AF024708,

 AF024693, U35376, X52334, X52533, X78924, U09848, S54641, AF022818, L32164, D50419,

 Z29121, X77744, X83496, AF020591, X65233, X89631, X89632, X89639, X89630, Z96138,

 X12593, AF031657, M20675, M36516, L77247, M27878, M27877, U66561, X68011, X06021,
- 45 X12593, AF031657, M20675, M36516, L77247, M27878, M27877, U66561, X68011, X06021 U31248, AF027140, X70394, AA631979, AA278662, AA089485, AA632298, AA115318.

35

AA481221, AA743098, T12540, AA255747, AA262064, AA768909, AA457311, R98364, R18845, W31899, C05700, T08471, AA626677, AA757980, F06362, T26645, AA760927, R25565, W27300, H17412, AA148577, AA284223, AA076467, N89159, AA085637, AA351209, AA379532, W26008, AA134718, AA376773, AA492007, AA159900, W26015.

- 5 AA321575, AA552236, AA305054, AA211186, AA176490, AA385633, A1033507, AA837846, AA134518, AA136720, AA805052, H81495, N89434, AA130554, AA279733, AA714166, AA283909, AA299149, AA176763, T84358, AA332875, AA485008, AA903551, T63342, W28368, AA295275, AA360436, A1028211, N92000, AA974380, T28391, H78719, AF026090, AA665316, R82475, T64395, AA838384, AA495843, H644444, N53129, AA234320, AA682749, T93801, R98366, AA083811, Z21091, R99396, AA349969, AA166907.
- AA682749, T93801, R98366, AA083811, Z21091, R99396, AA349969, AA166907,
 AA140301, AA154311, AA102943, AA666789, AA522401, AA980878, AA144467, W75531,
 AA980960, AA122779, AA414083, AA072856, AA155148, AA726681, AA517494,
 AA427186, AA172972, AA981211, AA474782, AA432622, AA119762, AA981587,
 AA879690, AA792248, AA575639, AA286209, AA546652, AA451439, AA119538.
- 15 AA940187, AA529691, AA798457, W33741, AI035795, AI036660, AI037302, AA896035, AA267120, AA451420, AA537315, AA271667, AA615956, AA444998, AA611316, AA646002, AA832620, AA624111, AA896323, AA799068, AA409820, AA036225, AA476109, AA562383, AA414390, AA940009, AA272824, AA014577, AA259489, AA061989, AA117053, AA120738, AA522022, AA189434, AA499647, AI048018, AA438234, AA920944, AA285425, AA791081, AA930487, AA120389, AA624117, AA242194, AA269994, AA920944, AA285425, AA726429, AA646425, R46897, D66035, D65928, C10220, D66687, D66778, H34728, D66501, D66247, AA999112, AI030817, AA497308, H31225, D49111, T42823, C94399, N65363, AA661022, C89975, D48522, AA964732, D49235, C24946, C73815.

SEQ ID NO:632

Y14443, AJ003147, M14916, Z81494, U29082, AF017732, Z73911, AF003131, X51668, AC004759, AC004656, U80436, AA732442, AA631979, AA593878, AA291304, AA262034, R01991, AA255747, AA627492, N47920, AA873393, AA887730, AI015953, AA406395, AA153797, AA929315, AA692551, AI007053, AA739013, AA105758, AI012832, AA859163, AA819622, D39550, AA818075.

SEQ ID NO:633

AC004008, M92067, M69197, AL021878, D50063, AC004695, AF064866, AL021069, Z95619, U93364, AC002431, Z95704, AC004237, U38804, X62629, Z92833, AA423848, AA280614, AA731338, N23116, AA742613, AA258860, N57005, AA854469, AA782404, AA807189, AA831404, H30390, R23996, AA782590, AA971238, AA809886, AA190774, W16797, C20889, AA155945, T82345, AA314705, H50724, AA602748, H80389, H19587, R74835, AA413238, AA178109, AA960395, AA183534, AA475065, AA794857, AA184298, AA185033, AA423706, AA274210, AA183790, AA789673, AA619473, AA245620, AA66974, AA200313, AA266621, AA792984, AA939691, AA28499, AA185159, AA823019, AA174638, AA175350, AA207570, AA607108, AA673670, AA163538.

AA838848, AA739428, AA163136, AA221341, AI030559, C90551, C84686, AA957321, D69601, Z47385, C56105, N98009, F15477, R30601, AA900326, R03393, C56081, C55758.

5 SEQ ID NO:634

Z54200, U41531, AF067217, X81410, Z71265, U17801, Z96810, AJ003215, AJ003216, Y10159, AF026212, S80990, U42409, U41034, M73780, Z67738, AE001100, Z73425. M90056, AE001099, U00064, W60281, AA680145, T86901, W60373, AA218706, N93247. 10 W56709, AA199800, R06131, F13709, W38951, AA721305, AA337162, AA557221, AA037000, AA349130, R12401, AA775324, W83919, AA543805, AA529559, C25736 C61804, C50051, AA851369, AA960680, U83036, H35098, AA818185, H35338, AA696994, AA686311, AA851225, AA945587, AI013839, H33949, AA109384, C92455, D34940, T41855. D68179, C93045, AA999008, C84817, AA532276, C64377, AA824888, AI045039, F20039. 15 AI044338, AA963225, AI029296, D27869, N43256, AA397497, AA550204, AA850498 C25785, AA944580.

- Z54200, D26155, Z93378, X72889, U00058, AF038606, Z84469, AC004681, U76670, U67078. M27902, AB011480, D45415, X77934, M64598, Y13467, X91638, Z75184, U09176, U50198, AL022603, Z69788, U33007, AP000039, M86524, Z73197, M10217, AB002306, AB011169, X89633, Z75287, U13679, X15731, M27394, L23419, Z81089, X12530, X07203, U72994, U23812, X02132, AF068711, Z79596, Z71559, L09751, L25366, Y10377, X04370, N34282, AA610128, N71690, AA854773, N47938, N49144, AA918304, AA167189, T66784. AA805205, H25330, H25289, N52314, AA652836, AA131710, N75170, R58771, W25576. AA131614, D63227, D78795, AA001851, N25952, W58590, W23618, AA280389, N89632, AA767765, AA814248, H25876, AA825351, AA737003, AA513727, H04156, H47032. 30 N31899, W58591, H45977, AA775683, AA931504, H49974, AA058584, AA311717, H72527,
- T25345, AA309867, W28719, T84451, H82040, W31951, AA465009, R62852, AA303052. AA303053, T03658, W92852, AA258330, AA259258, AA352117, AA664208, D56028, AA743062, AA380958, D56068, R98913, H99963, AA046850, T32554, T72763, W94845. N40981, AA622286, AA651656, R32958, AA961221, H84967, W21827, AA251330.
- 35 AA403185, AA807661, R36454, R94395, H94380, W79361, AA019638, AA491878, AA211395, AA506410, AA091050, AA304445, AA115008, N64745, W69704, H64488 AI036578, W08769, AA162744, AA114610, AA105703, AA409436, AA212648, AA561603. AA116847, AA753333, AI026325, AA874856, D41787, AA898754, L38222, H33856. AA471583, AA898788, AA480694, C10474, C68085, C66182, D74603, C71511, AI009431,
- AA754480, AI043271, T38339, AA949284, D34889, C19752, D26772, AA950431, AA392732, C69941, C35127, AA923982, T15164, D37487, D32968, AA585623, AA263433, AA753112. AA787504, AI035055, D26773, C38447, AA157786, C30905, AA246991, C07325, AA942419, D33726, AA997367, D34334, C72445,

Z74615, K01228, Z78279, S64596, X06269, AF017178, U03419, U08020, M32798, M32790, M55998, S67482, V00401, J00836, M10571, X06753, U30767, X15896, J00113, M27208, AB015440, X57981, M12199, D83228, L00063, M27207, X02373, U62528, X02420, X06268, L10347, J00116, X16468, U75405, M17866, M65161, M63708, L48440, U23822, M17504,

- 5 D88764, V00390, J00838, M25983, J00820, AC002528, AF004877, J03464, Z74616, V00503, X55525, M36662, AF035120, AB008683, M63595, M63596, X70369, AJ005395, D49399, M12200, X58251, L24034, U68412, S67495, X52046, AF036704, AA788961, AA789233, AA704140, AA554805, AA456909, AA594126, AA703999, AA599521, AA489802, AA434079, AA669422, AA456983, AA453741, AA599208, AA599300, AA522696,
- 10 AA256247, AA599762, AA427641, AA953103, AA564675, AA595560, AA600032, AA602898, AA975668, AA399202, AA772878, AA453822, N26572, AA487514, AA453844, D79055, AA827555, AA292300, AA983262, AA446927, AA669785, AA600271, AA284550, AA586696, AA453760, AA669870, AA780725, AA489810, AA457264, AA600020, AA256158, AA669998, AA988677, AA977821, AA594770, AA293101, AA600282,
- 15 AA669843, AA593813, AA486114, AA668442, AA617730, AA522675, AA653779, AA669973, AA405497, AA256215, AA613975, AA668635, AA599428, AA600269, AA599483, AA434290, W49666, AA599996, AA985499, AA663268, AA668601, AA664460, AA181457, AA937318, AA293155, AA284822, H39823, AA457761, AA687276, AA668540, R50997, H39824, AA457605, AA780459, AA457292, AA670229, AA121852, AA663273,
- 20 AA961662, AA759186, AA847723, AA477812, N49216, AA176648, AA987731, AA985449, AA551267, AA589384, AA619671, AA760498, AA498527, AA710766, AA245636, AA061236, AA008391, W97122, AA880603, AA048572, AA727786, W15958, AA799103, W50610, AA29145, AA498716, AA021772, AA008616, AA221649, AA286140, AA760025, AA914858, AA756818, W11818, AA067665, AA733749, AA563406, AA003166, AA755655,
- 25 AA717738, AA220654, W15796, W41217, AA231180, AA592286, AA572133, W97003, AA230997, AA008230, AA146453, AA914875, AA799164, AA050608, AA175736, AA799161, AA646848, AA274801, W16311, W07999, W49396, AA230929, W64655, W11321, AA756734, AA616738, AA245567, AA067771, W17438, AA790612, W76771, AA240871, AA168805, AA498114, AA733650, W20796, AA061273, AA793607, W63897.
- 30 AA499466, AA840346, AA049905, W66592, AA265649, AA738908, AA068229, AA821411, W40688, AA930430, AA171030, AA049870, AA253899, AA016519, AA285759, W47703, AA221672, AA466398, AA500545, W62413, AA759986, W78542, AA097381, W11675, W11136, W98082, AA050788, AA572204, AA286523, W82139, AA086991, AA924727, AA925689, R46881, R46996, R46997, C95060, AI008052, R47025, AA957191, AI001468,
- 35 N82871, C82569, C83425, AA819207, C94922, AA605894, C94535, R46990, N60615, AA659942, H32295, C13058, C49897, C43039.

SEQ ID NO: 637

AF039575, D55672, M94630, D55673, U11274, X16933, D55671, D55674, U02019, X03910, AF026126, U11273, U76713, M65028, Z36844, X70151, AE000696, U14942, Z32682, X56877, AC002106, Z48612, AC002107, Z97342, U41276, M37249, X80340, AI002518, AA411615, AA285116, AA613845, AA488767, H88010, AA577517, AA505693, W76314, 45
 AA398152, AA830698, AA827418, AA861968, AA205538, R78209, AA825414, AI041755,

AA132323, AA399572, AI031590, AI051151, D59165, AA683349, AA480614, AA574124,

- AA885552, AA283263, AA974450, AA046949, W72288, T59548, AA987597, F22113, AA729692, AA160192, AA627344, W16765, W74620, AA579951, AA847462, AA410659, AA946935, AA668933, N34405, R53382, D55170, AA483980, AA160191, T20305, AA887151, D54861, AA384877, D53019, AA344109, W44942, N67235, AA316323,
- 5 AA204898, AA522627, AA352838, AA988140, AA363135, AA013331, AA010071, AA385528, H88233, W94321, AA279437, N48686, AA973105, H85798, AA434371, AA132221, W85871, N55528, AA905527, AA583315, W39592, AA090932, H89244, AA534156, H13446, N79247, R91421, H49549, R69888, AA173703, AA770030, AA358784, AA256832, T59503, H70985, AA502474, AA213892, R30889, H70903, H49797, N48638,
- 10 AA340787, AA305742, W64667, AA555733, AA168581, W10983, AA221785, AA120477, AA268992, AA048457, AA162021, AA461673, AA562015, AA123096, AA123285, AA222476, AA044466, AA049003, AA270438, AA114724, AA866856, AA049523, AA014296, AA863513, AA032652, AA174300, AA154330, AA170394, AA177845, AA521669, W85317, W41617, AA154631, AA645815, W98500, AA120123, AA185499,
- AA177390, W97739, AA153924, AA591486, AA555908, AA155285, AA222484, W15850, C78010, AA855800, AA543945, AA710243, AA137791, AA880182, W34924, AA930473, AA014937, AA033018, AA475204, AI050524, AA089262, AA068980, AA072859, AA000003, W82110, AA072954, W83119, AA213095, AA253676, AA472723, AA869343, AA957413, AA925245, AA945952, AA944182, H32050, H33819, AA963461, AA661101, AA659953, AA924879, T02275, C34098, C47987, C33433, AA694919, AA605613, AA751567, C46118.
- 20 AA924879, T02275, C34098, C47987, C33433, AA694919, AA605613, AA751567, C46118, D37610, C72712, AA495419, C63143, C46160, AA605760, AA495494, AA606037, D22637, C28167, C94052, AA750434, AJ227709, AA753713, AA963457, W96792, D34724, H56888, AA494606, AA924835, AA605898, D67818.

- D55671, D55674, D55672, D55673, AF039575, M94630, U02019, U11274, X16933, U11273, X03910, AF026126, Z36844, U76713, M65028, AE000696, M37249, X56877, U05173, OAC002106, AC002107, Z93286, Z48612, X80340, U14942, AA132323, R78209, AA988140, AA627344, AA363135, T59548, T20305, H70985, AA384877, AA358784, H88010, A1002518, AA340787, AA946935, AA385528, AA305742, AA173703, AA090932, W39592, W94321, AA332014, AA223769, N87676, AA905527, AA411615, AA092934, AA316323, C02355.
- R47891, AA344992, N89279, AA861968, AA094588, AA285116, AA304460, AA488767, N48638, AA353432, AA046475, AA613845, AA338080, W74620, AA352838, AA205538, W76314, AA505693, AA577517, AA283263, AA830698, AA046949, AA160192, AA483980, AA502474, AA410659, AA356928, AA379701, AA143684, N34405, AA344109, AA0131331, H49797, AA827418, AA398152, AA683349, AA971745, AA825414, AA574124, A1041755, AA865626, W37362, W93291, D54448, AA677971, C05341, AA6777711, AA129356,
- 40 AA338283, AA384719, W72288, R33263, R18732, R23523, AA311332, AA384993, AA172067, AA046901, AA164820, AA164816, T30093, T31747, T36263, T64849, T15345, AA353647, T59275, R18789, AA442927, AA120477, AA048457, AA562015, AA268992, W64667, AA114724, AA014296, AA555733, AA032652, AA154631, AA120123, AA049003, W97739, AA049523, AA044466, AA591486, AA153924, W41617, AA155285, W85317,
- 45 AA863513, AA168581, AA015138, W10983, AA162021, AA645815, AA221785, AA222476, AA120152, AA461673, AI007232, AI019790, W15850, AA035909, W75459, AA437919,

AA986586, AA089262, Al050524, W75484, H33819, H32050, AA957413, AA925245, AA659953, AA661101, D37610, D34724, Al029342, C46160, AA750434, AA753713, AA694919, D22637, C28167, C63143, AA754624, C46118, AA942550, C94052, AA963457, AA525556, C72712.

SEO ID NO: 639

AF026126, D55672, D55674, U02019, U11273, AF039575, M94630, X03910, D55673, D55671, U11274, U21972, U22008, U21971, U21978, X15901, U21977, U21974, U22007, Z14148, U96876, A1017414, AA843750, AA971745, AA454880, AA213813, AA969279, AA284959, AA825717, AA214580, AA502793, AA013237, AA651955, AA836435, AA828387, AA046475, AA018680, H84906, AA305742, AA304460, AA338080, AA3444992, AA988140, AA353432, AA223769, AA356928, R478891, AA384719, AA100533, AA379701, AA094588, AA368538, AA102724, H70985, N89279, AA092934, AA340787, AA143684, AA836218, AA132323, N87676, W65331, AA732335, AA034416, T97193, H65962, AA811382, H63476, W94690, AA482166, AA491400, AA743022, F19524, H67426, AA701488, AA348504, AA240478, AA014296, AA120123, AA114724, AA154631, AA155285, AA015138, AA052740, AA562015, AA153924, W97739, AA120477, AA591486, AA11410, AA981652, AA895128, AA863853, AA239252, W61764, AA968268, AA423742, AA414086, AA163047, AA546846, AA920420, H33819, A1013665, AA957530, AA979924.

25 SEO ID NO: 640

U77456, AC001228, U51281, D12618, M86667, X61449, U31633, AF009647, M37893, U43188, AC002418, AL009177, AL023280, U43189, AL023094, AI016522, R48876, AA917462, AA938463, H92201, R48773, N48113, H92347, R19751, W86729, N71060.

AA392608, AA998125, D15172, C22287, C23371, AA950874, C23197, C23370, C23327.

- AA554566, AA774179, AA632813, AA305042, Z21160, W68381, AA422160, AA082230, AA084933, AA091376, W67341, AA463350, AA504634, AA303999, N88683, AA642209, AA862276, X98428, H41078, AA057001, AA071214, AA375168, D82110, AA173360, AA223329, AA662886, AA311655, AA748043, R93829, AA456144, AA747916, W67231, AA083297, AA127585, AA622598, AI025070, AA251168, AA313902, AA988824, AA992418, AA504969, AA504982, AI048867, W50655, W78317, D21690, AA646147, AA545087, AA106981, AA589661, AA692748, AA546894, AA122854, AA414773, AA823409, AA529543, AA111345, AA111456, AA555821, AA571538, AA073118, AA44420399, AA756108, W99877, AA172977, AA822787, AA822946, AA062108.
- AA239139, AA616781, AA107614, AA265677, D19206, AA290486, AA672731, AA269940,
 AA290027, W75858, W71454, W30067, W33469, AA915161, AA574532, AA725966,
 W54713, AA016588, AA178755, AA762767, AA088126, AA414161, AA107862, AA790496,
 AA939593, AA153479, AA154763, AA799449, AA849947, AA866472, AA899456,
 AA997667, T13866, Z33688, W43783, AA550307, W59841, AA686844, T42545, AA598004,
 C71012, Z25726, Z34234, AA042685, AA598003, AA963554, AA962942, T45200, AA849723,
- 45 C13218, AA264542, AA394404, N82818, AA113719.

SEQ ID NO: 641

AC001228, U51281, U77456, X61449, D12618, AE000687, AC004752, AF042838, D21877. U75744, AF047354, AC005192, Z98257, AC003964, Z83236, X64346, AL023280, Z14148, U56814, M86409, L43052, AI022077, AA702914, AA676892, R11795, F06995, H07028 AA321115, AA324587, T11258, AA933707, AA243047, R19751, H25365, AA693729. AA723973, AA152285, AA452598, AA577597, AA131259, T89186, T73653, H57989 R56347, AA308328, R67289, AA496536, AA565583, AA600869, AA631012, AA704614, T56634, AA609890, AA618425, AA767706, AA228788, AA449013, AA587232, AA252703, H29250, AA551389, Z43476, W81191, F06616, F12256, W81759, AI005801, AA278035. AA561994, AA791968, AA509417, AA840260, AA162772, AA529403, AA260459, AA571122, AA571890, AA718405, AA254433, AA763859, W34203, AA879597, AA545087 W35074, AA412805, AA414161, AA288814, C77764, W87216, AA959385, AA117257, AA080490, W89902, AA799038, AA106981, AA204423, AA591289, AA683783, AA145450. 15 C86607, R75114, AA592604, AA863799, AA270250, AA591467, AA798234, W13376 AA980121, AI020871, AA110920, AA408822, AA178617, AI005984, AA764575, AA517253, U83052, U83051, AI011922, AI008650, C41484, N97615, R90669, C44194, R95238, C65151, AA550344, AA606113, C90830, AI009597, AA841083, C91238, AA097115, AA606035. C84046, AA801364, T13682, F15462, N96508, AA721895, AA800831, C23689, Z26033, C92292, AA605962, C92220, AA606220, AA899235, C94470, C90155, C90591, C94228,

SEQ ID NO: 642

AA956720, AA801365, AA394701.

- S67071, L40392, U28734, X66366, Z73105, U31600, U67424, Y12488, AC004659, U46933, X83619, U18650, AC002324, AL009181, U31447, AL021920, U86962, Y09585, AB007648, AF020657, M91452, X62880, Z48153, D14886, AC004593, AF000943, X65692, U97193, Y15944, AC002433, Z82187, AL021407, M80571, L02534, AC003661, AC000022, Z97338, AE000665, AJ001515, U91325, Z49398, D14887, AC003685, D85434, X57201, M91451, AL022150, U20906, U17838, L31549, X77225, U20907, Z95559, X69465, X99384, Z99091, D45132, X75383, Z81525, AB001025, AA147323, C75219, AA180321, Al038854, AA513522, N24122, AA826001, AA621423, AA113317, T71578, AA829191, AA361495, AA334984, AA888518, AA147425, AA376840, T71726, AA304423, T60745, AA090285, T18537,
- AA776259, AA355425, W27491, X93861, N76507, W26196, D29591, W84460, T35539, AA974278, H19156, AA488476, N55978, AA770224, R87930, C03520, AA074879, N41585, AA065299, AA065300, AA459699, AA775452, AA864705, T85861, N55760, R55267, AA737681, A1014668, A1017017, N91426, R50149, AA306910, R52021, AA569993, AA854695, A1014669, AA812204, AA274725, AA624208, AA726045, AA530666, AA170655, AA690285, AA546306, AA6666700, AA692975, AA168229, AA822093, AA921137.
- 40 AA690285, AA546506, AA666700, AA692975, AA168229, AA822093, AA921137, AA414037, AA207492, AA163040, AA712011, AA623900, AA863938, W33766, W53793, AA276125, AA210149, W81788, AI037781, AA863961, AA266872, AA068288, AA510967, AA273522, AA230836, AA240745, AA637449, AA960471, AI007139, AA278014, AA260506, AA067133, AA469668, AA184000, AA896287, AA674119, C85510, AA061335, AA717739,
- 45 AI019258, AA895475, AA596421, AA793428, AA797955, AA815898, AA881218, AA467436, AA253768, AA798124, AA675676, L26732, AA404015, W89980, AA450653, AA467444,

35

AA517764, AA895398, AA592488, AA716849, AA795527, AA871936, AA445091, AA588982, C80585, AA623349, AA915557, AA015563, AA288169, AA673066, W29377, W65220, W97542, AA110483, AA096866, AA929628, AA123743, C80564, AA607305, AI036200, R47104, AA801288, N37967, C73752, D46463, D69867, AA395389, D47486.

- 5 D46643, C33987, T23394, T14760, C57917, D72235, T02602, C34059, AA224681, C35832, C20153, C74612, AA520866, D48156, D32491, C24983, D48194, T02509, AA397498, AA933532, AA998231, AA098688, N37915, AA224648, T42040, AI043785, M79841, AA074017, D86754, N81731, AI011347, AA891553, AA898292, C93511, H35009, AA420925, C91629, C23431, AA933407, AA996961, AA945917, F20076, U94861, AI052940, C23848,
- 0 AA685074, W99668, AA247097, AI043586, U94862, AA933520, W43801, C57017, C26078, AA089418, AI013481, T22782, H31546, N43198, AA899175, C61289, D24435, AA998158, D48024, AA023862, C62969, D40132, AA264439, C74704, AI008510, AT000376, D67546, H32221, AI011258, AA660699, AA943361, D39670, AA585752, C73502, AI026402, D21984, D15898, AA901367, AA957340, AI035125, L47867, F15112, AA879398.

SEQ ID NO: 643

Z79791, X95226, D13643, X95227, U26742, U46744, Z35849, X70844, U46745, AA489309, AA682981, D52988, AA134434, AA903135, D56210, D54461, Z19998, AA318031, A113840, AI016394, AA74934, AA780331, AI004714, T91101, AA768498, AA993774, AA908522, AA532972, AA609007, AA720792, AA687778, AI002166, W60915, AA035115, AA563593, AA845320, AA883925, AA670296, AA628513, AA676251, AA147779, W61055, AA417088, AA412533, R99348, AA421332, N75319, N28019, N30220, W20481, N68929, W16625, W52766, AA995135, N36220, AA482324, AA725042, T61686, N89859, AA112870, AI004733, AA782100, AA018416, AA975996, AA501746, AA327943, N64300, N59261, W47586, T60392, H57505, T73126, AA7424357, AA258388, D54607, AA019585, AA287736, AA3258389, AA782815, AA410303, AA405908, AA577338, N94329, AA370666, R46294, AA333707, AA287070, N22752, AA437333, AA613126, AA489271, N99465, AA531557, AA349277, AA305667, AA349028, AA428819, H13595, AA479601, H15827, N35317, R98916, AA403237, N40295, AI033757, W04770, AA666669, AA571981, C76660, C76658,

AI035391, C85948, AA919731, AA240590, AA498824, C79954, AA259416, AA762165, AA386664, AA651368, AA697927, AI008005, AA140681, AA803316, AA799305, C24953,

SEQ ID NO: 644

AI032448, H32867, D49047.

- AC003080, AP000034, U09871, Z70691, U26310, Z75746, Z75893, U93196, U49830,

 40 AC002287, AC003043, Z36753, AE000036, AC003676, AL021469, M34482, AE0000046,
 AF064860, U35013, AE000004, AE000035, Y10196, Z66514, Z11115, M81688, M81689,
 AF016414, AC000076, AE000550, M29154, L08380, U97003, D86251, U10414, AC002456,
 Z37964, U40423, Z70289, U80843, U41748, AC002066, U97190, AL021480, U80028, Z98753,
 AC002341, Z54236, AB008264, L09750, Z48007, Z84814, U10402, U95090, X56851, Z68120,
 AE001117, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321,
- 45 AE001117, AA52/268, AA431/93, AA/80210, W/4607, AA004205, N25768, AA630321, AA854206, AA643184, AA216596, W45570, AI038928, AA811726, AI027706, N28891,

AA001737, N30763, AA603729, W90372, W92013, AA610141, AA148861, H97575, AA490320, AA535623, W94384, AA214609, W04711, AA424324, W68201, AA486288, H49322, AA678487, N73273, W02793, AA165561, AA864358, N67842, AA953621, A1034146, W68202, W30934, W15581, AA693353, AA971954, H49323, AA205308.

- AA648400, H44141, H97860, AA114952, N20849, AA485269, AI004353, AA766793,
 AA804853, AA433927, N62700, AA114829, AA825778, AA007422, AA552090, AA579359,
 H10401, H01442, R82009, H69533, W31657, AA702752, AA430583, AA318373, R22948,
 AA779558, AA216543, AA329745, T97005, R82061, W67753, AA025477, R81522,
 AA774128, AA775160, T97120, AA996354, H48804, R34243, Z28536, H48810, AA513115,
 AA025396, H44062, D78892, T35994, AA287628, AA777768, C02732, AA628646, W90371.
- AA025396, H44062, D78892, T35994, AA287628, AA777768, C02732, AA628646, W90371,
 Z19475, R62712, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402,
 AA079914, AA822900, AA561771, AA560406, AA097088, AA254405, AA822893,
 AA623299, AA200448, AA444663, AA396152, AA863792, D18314, AA560556, AA790566,
 AA778244, AA183321, AA116991, AA960524, AA619931, AA538093, AA545942,
 AA980553, AA718602, AA624507, AA690917, AA690993, W36441, AA170629, AA270487.
- AA980535, AA718602, AA624507, AA690917, AA690993, W36441, AA170629, AA270487,
 AA688806, AA855805, W71565, AA690916, AA718699, AA756480, AA162299, AA268163,
 AA414642, AA510718, AA168386, AA547224, AA759545, AA177481, AA798564,
 AA198582, AA958885, AA840456, AA959168, AA162089, AA474849, AA244613,
 AA245968, AA036386, AA183584, AA939932, AA759392, W71494, AA117622, AA168119,
 AA277326, AA286405, AA863529, AA416281, AA849531, AA848917, AA957315, AI009528,
 C06826, D39911, D22377, AA605573, Z18210, C32716, C90994, AA945230, C84183,
 AA899962, C93176, AA943491, C89903, AA438451, AA957108, C36068, W63192,
 AA990991, C94217, AI012441, D73182, AA850803, AA202444, W63171, AA925071,
 AA924397, C54804, AA925965, T02433, AI044720, N55612, AA161699, AI037825, N96377,
- 25 W06489, AA550648, AA676066, AA898115, C90271, AA942692, AA842873, C62969, AA712502, AA997400, AA996923, AA890788, C54452, AI045785.

SEO ID NO: 645

30 AE000004, AP000034, AE000035, U35013, AC003080, AE000046, AE000036, U26310. Z75746, U93196, Z75893, AC002287, Y10196, AC003043, Z36753, M34482, AC003676. AF043105, AE000002, U49830, AL021469, AF064860, AE000054, U40423, AF016414, AF036444, Z37964, U09871, AC000076, AB008264, Z66497, AE001117, X56851, Z66514. Z84814, AE000550, M29154, M81689, Z68120, AC002341, Z70289, U10402, D86251. U10414, AC004644, AL008971, Z98753, M81688, U97190, U95090, U80843, Z54236. Z70691, X82684, AB010068, U41748, U80028, Z11115, L09750, AL021480, AC004540. Z48007, U97003, AA431793, AA780210, AA527268, W74607, AA004205, N25768. AA854206, AA643184, AA630321, AA216596, AI038928, W45570, AA811726, AA001737. 40 AI027706, N30763, W90372, AA603729, W92013, AA610141, AA148861, H97575, N28891, AA490320, AA535623, AA424324, AA678487, W04711, AA486288, N73273, W02793. W94384, AA165561, W68201, N67842, AA864358, H49322, AI034146, AA953621, W15581, W68202, AA693353, AA214609, W30934, H49323, AA648400, H97860, AA205308, N20849, AA766793, AA485269, AI004353, AA804853, AA433927, N62700, H44141, AA971954. 45 AA114829, AA825778, AA007422, AA552090, H10401, AA579359, AA114952, H01442,

R82009, H69533, AA702752, W67753, AA430583, R22948, AA779558, AA318373, T97005,

R82061, AA774128, R81522, AA329745, AA775160, AA996354, W31657, H48804, R34243, Z28536, AA216543, H48810, AA025477, AA025396, AA513115, H44062, T97120, AA287628, AA777768, C02732, AA628646, D78892, T35994, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA07941

- 5 AA560406, AA254405, AA097088, AA561771, AA822900, AA444663, AA623299, AA200448, AA396152, AA863792, D18314, AA790566, AA183321, AA560556, AA960524, AA472424, AA116991, AA268163, AA690916, AA414642, AA288151, AA980553, AA162299, AA270487, AA718602, AA718699, AA545942, AA538093, AA619931, AA624507, W71565, AA690993, AA690917, AA170629. AA756480, AA688806, AA855805.
- 10 W36441, AA798564, AA168386, AA547224, C80271, AA759545, AA208995, W36262, AA958885, AA198582, AA546863, AA840456, AI046968, AA177481, AA896177, AA036386, AA474849, AA510718, AA959168, AA245968, AA155555, AA183584, AA759392, W71494, AA106584, AA117622, AA277326, AA286405, AA863529, AA416281, AA880395, AA939932, AA244613, AA162089, AA274576, AA048938, AA849531, AA848917,
- 15 AA957315, AI009528, C32716, C23790, Z18210, D39911, AA605573, D22377, AA943491, C84183, C92834, AA945230, C90994, AA051845, C93176, AA438451, AA899962, C89903, AA550648, AA712502, AA898115, C90271, C23646, AA957108, AA925071, AA676066, AA997400, AI037825, C54452, C54804, AI012441, AA900113, W63192, D73182, C25562, C62969, AA842873, AA890788, AA996923, AI045785, T02433, N55612, AA202444,
 20 A1044720, AA942692, N96377, W06489, C36068, AA161699, C94217, AA990991, AA96565, W63121, AA90747, AA89803

AA925965, W63171, AA924397, AA850803.

SEQ ID NO: 646

AP000034, AE000004, AE000035, AC003080, AE000046, AE000036, U35013, U26310, U93196, Z75893, Z75746, AC003676, AE000054, Y10196, U49830, AC002287, AF043105, AL009029, AF064860, Z36753, AL021469, AC003043, M34482, AE000002, Z66497, Z37964, M29154, L08330, Z66514, AC002456, U40423, AE000550, M81688, X56851, D86251, U12661, Z54236, AL021480, U41748, U80028, AC000076, Z11115, Z68120, AE001117, Z98753, U95090, Z70289, L09750, U80843, M81689, Z84814, AF016414, U97003, AL008971, AC002341, U10414, U10402, X82684, AF036444, U97109, AB008264, AC004644, Z48007, AA527268, AA431793, AA780210, W74607, AA004205, N25768, AA630321, AA854206, AA643184, AA216596, A1038928, W45570, AA811726, AA001737, Al027706, N28891.

- 35 N30763, AA603729, W90372, AA610141, W92013, AA148861, H97575, AA490320, AA535623, W94384, W04711, AA424324, AA486288, AA678487, W68201, W02793, N73273, AA165561, H49322, AA864358, AA214609, N67842, AA953621, AI034146, W68202, W30934, W15581, AA693353, H49323, AA648400, H97860, AA205308, N20849, AA485269, AI004353, AA766793, AA804853, AA433927, AA114952, H44141, AA971954,
- 40 N62700, AA114829, AA825778, AA007422, AA552090, AA579359, H10401, H01442, R82009, H69533, AA702752, AA430583, AA779558, R22948, AA318373, W31657, T97005, R82061, W67753, AA329745, R81522, AA774128, AA216543, AA775160, AA996354, AA025477, H48804, T97120, R34243, Z28536, H48810, AA513115, H44062, AA025396, D78892, T35994, AA287628, AA777768, C02732, AA628646, W90371, Z19475, R58722, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914,
- 45 AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406, AA254405, AA097088, AA561771, AA822900, AA822893, AA444663,

AA623299, AA200448, AA396152, AA960524, AA560556, AA790566, AA116991, AA472424, AA183321, D18314, AA414642, AA268163, AA690916, AA756480, AA718699, AA270487, AA288151, AA162299, AA538093, AA619931, AA545942, AA980553, AA624507, W71565, AA688806, AA690993, AA690917, AA718602, AA170629, AA855805,

- 5 W36441, AA849531, AA848917, AA957315, AI009528, C06826, C23790, D22377, AA605573, D39911, C32716, Z18210, C89903, C93176, AA899962, C90994, AA945230, AA438451, C84183, AA943491, AA051845, C92834, AI012441, AI045785, D73182, C62969, W06489, AA202444, AI044720, AA842873, AA890788, N55612, AA550648, C90271, AA996923, C25562, AA712502, AA997400, W63171, AA900113, AA924397, AA925071,
- 10 AA957108, AA990991, C94217, W63192, AA676066, AA850803, AA925965, C36068, AA161699, C54452, AI037825, N96377, AA942692, C54804, T02433.

SEO ID NO: 647

15

AF027390, U28686, M55673, AC004525, AF067611, U67212, AB009055, U70857, AF067216, AC000396, U95982, Z73905, AA002081, AA113127, AA831044, AA002245, AA805579, AA767554, W91985, AA430583, W91964, AA740770, AA768675, AA433927, N68306, AA765872, AA004288, AA113840, AA705271, AA903135, AA682981, R62689, AA345397, AA092407, T55643, AA356897, AA04406, T78803, AA305641, T72106, AA306222, AA001622, H00486, AA307902, W37253, R36350, AA313689, AA076252, AA085427, AA192462, AA143762, AA325775, AA177031. AA305815, AA004369, AA70349, AA70344

- AAU01622, H00486, AA307902, W37253, R36350, AA313689, AAU76252, AA085427, AA192462, AA143762, AA325775, AA177031, AA305815, AA004369, AA705484, AA001908, AA811088, H81336, AA790191, AA105116, AA790153, AI006318, AA472674, AA027542, AA672120, AA939578, AA869414, AA414094, W09603, AA238985, D76727, AI021034, AA547630, AA983116, AA619440, AA139951, AA589062, AI046894, AA152861,
- 25 A1021034, AA547630, AA983116, AA619440, AA139951, AA589062, A1046894, AA152861 AA538976, AA263759, AA140709, AA686756, AA686313, AA687033, AA736059, C93720, C91205, AA820697, AA990781.

30 SEQ ID NO: 648

U26310, Z70691, U09871, U49830, Z70289, Z81369, U95090, U80843, L08380, AC002456, U64604.

- AA527268, N28891, AA114952, AA214609, H49322, W68201, AA431793, AA780210, W94384, AA971954, W74607, AA535623, AA004205, W30934, N25768, H44141, AA643184, AA854206, AA630321, AA811726, AI038928, AA216596, W31657, AA216543, AA825778, W45570, AA001737, AA433927, N30763, AI027706, AA603729, R82009, T97120, W90372, D78892, AA610141, AA148861, AA025477, W92013, AA490320, AA678487, AA205308, H97575, AA424324, AA430583, T35994, AA318373, AA486288, W04711, AA165561,
- 40 AA329745, W02793, AA774128, H49323, N73273, AA864358, W68202, AA953621, AI034146, N67842, W15581, AA996354, AA779558, N62700, W90371, Z19475, AA648400, AA693353, R62712, AA804853, AA766793, AI004353, AA485269, N20849, H97860, AA114829, R22948, W67753, R82061, AA007422, H01442, AA579359, AA552090, H10401, AA775160, AA025396, AA287628, AA777768, AA702752, C02732, Z28536, AA513115.
- 45 R81522, H69533, R34243, H48804, AA628646, H48810, H44062, T97005, AA175464, AA200267, AA466843, AA611918, AA608178, AA396402, AA079914, AA560406,

AA254405, AA097088, AA561771, AA822900, AA822893, AA623299, AA444663, AA790566, AA183321, AA396152, AA863792, AA960524, AA538093, W36441, AA849531, AA848917, AA957315, AI009528, C06826, AA955113, D22377, D39911, C90994, AA438451, C89903, C84183, C93176, D42886, AA998608, AA999991, AI012441, T01552, N5561, AD44720, AA097400, C65333, AA095071, W63102, C62069, C54804, W63171, AA957093

5 AI044720, AA997400, C65333, AA925071, W63192, C62969, C54804, W63171, AA850803, AA676066, AF034791, AA898115, AA842873.

SEQ ID NO: 649

10

AG000319, AG000328, AP000031, Z75739, Z60966, Z75725, AJ229063, D89894, AL023780, AC004625, N28891, AA527268, AA214609, H49322, AA971954, W68201, W94384, W30934, H44141, AA780210, AA431793, AA114952, W74607, AA535623, AA004205, AA854206. AA825778, AA643184, AA630321, AA811726, AI038928, AA216596, N25768, W45570, 15 R82009, AA025477, AA433927, AI027706, AA001737, AA216543, N30763, AA329745, AA430583, AA603729, AA610141, AA318373, AA678487, AA490320, W31657, T97120. W90372, AA148861, AA165561, AA205308, AA424324, AA579359, H10401, AA486288, AA114829, N20849, H97860, AA766793, AI004353, AA485269, AA804853, W92013, AA693353, W15581, W68202, AA552090, N67842, H01442, R22948, H97575, AA775160, W04711, R82061, AA953621, N73273, W67753, W02793, AA864358, AA007422, AA996354, D78892, AA025396, AA774128, AA648400, AA287628, AA777768, R81522, AA702752, AI034146, T35994, Z28536, AA513115, R34243, H48804, H69533, H48810, H49323, H44062, T97005, AA779558, C02732, N62700, AA628646, W90371, Z19475, R62712, AA175464. AA200267, AA466843, AA608178, AA611918, AA396402, AA254405, AA561771, AA097088, AA822900, AA079914, AA560406, AA822893, AA462394, AI021677, AA289614. AA499550, AA849531, AA848917, AA957315, AI009528, C89903, C84183, C06826, C93176,

30 SEQ ID NO: 650

C90994, AA413366.

AA527268, AA780210, N28891, AA535623, W74607, H49322, W94384, W30934, W68201, AA854206, AA643184, AA004205, AA825778, AI038928, AA811726, H44141, AA329745, AA216596, AA214609, AA490320, H97575, N30763, W04711, AA610141, AA424324,

- 35 N73273, AA114829, W02793, AA552090, AA693353, W68202, AA486288, AA603729, W45570, W92013, H10401, A1027706, W15581, AA766793, AA953621, AA864358, H97860, AA431793, N25768, A1034146, N20849, AA485269, W90372, AI004353, AA804853, W67753, N67842, AA579359, H01442, AA165561, AA025396, AA971954, AA007422, R82061, R22948, AA148861, AA775160, R81522, AA433927, R82009, AA001737,
- 40 AA648400, AA430583, AA777768, AA702752, AA287628, AA630321, AA678487, AA513115, AA996354, 228536, AA318373, AA205308, C02732, AA774128, H493223, AA216543, AA779558, AA025477, AA628646, AA861724, N62700, AA114952, R58722, W31657, AA175464, AA200267, AA466843, AA608178, AA611918, AA499550, AI021677, AA957315, AA849531, AA848917, AI009701, AI029921.

SEQ ID NO: 651

- Z84480, AC003986, Z98048, AC004633, AL009029, AC000040, AC004638, AC002310. X92185, AC000127, AC000073, AC002312, Z68870, AC003687, AC002117, AC002468, AC002400, AC002554, AC003091, AL022098, Z99297, Z69918, AC002352, AC004149. U73628, AL021807, X65032, Z94721, AL022069, AC005159, AC003044, AJ229042, AC002430, AF051934, L09708, L78833, U66061, AC002076, U54776, AC002996, AC002300, AC004015, AL021978, U95743, AC002044, AC002496, AC004020, AC002550, AL008725, Z22585, X67330, AC004491, AC004098, AC002527, AC001644, Z75888, AP000046.
- AC000079, AC004026, Z73358, AC004031, AF045555, AC000068, AB009667, AC004623, Z69709, Z97196, AC002301, Z93242, Z99128, Z84474, AC002990, AC004129, AC004028. AF045450, AC004084, AC004760, AG000727, AC004475, U62293, AC003049, Z82244, X71875, AC002302, AC002351, AC000080, AL009181, Z75894, AC002390, AP000045. AP000036, D55653, Z82253, AC002425, AG000728, AC004517, AC004753, AC002455,
- AC003670, AC002126, AA903135, AA682981, AA489309, AA113840, D52988, D54461. AA134434, D56210, AA888777, AA640373, T52837, AA654840, AA834028, AA631497, AA330471, AA845333, AA525416, AA598617, F18761, H14617, H25846, H85053, H93717, AA632479, R94097, AA743968, AA077575, AA991824, C15811, W45283, AA350604. W45298, H12258, AA809049, AA486925, AA605266, AA668220, AA650623, AA770346, AA632765, D20297, AA844203, T04975, F07212, AA399458, H64635, AA486721, H57509.
- N25310, AA613340, AA886682, C75321, AA534852, AA713534, AA931946, AA423992, AA829710, R99168, AA501781, AA587316, AA608520, H47461, AA909004, AA468289, D53640, AA713762, AA015672, R97290, R98644, AA650434, AA993165, AA385624. AA705197, AA713933, AA984829, AA586553, AA669434, N70293, C16687, AA631469, AA654998, AA515622, AA213891, AA608682, D25667, AA077952, C14724, AA127486,
- AA291631, AA321731, AA767115, R16472, AA491796, AA532877, AA715351, AA728861, C05892, H91358, H83146, R12700, AA666669, AA571981, C76660, C76658, C85948, W62449, AI035391, AA240590, C87864, W62377, W77222, AA501262, C86532, AA863851, C87922, AA516955, AA501128, C88111, AA105887, AA896910, AI042998, AA409017,
- AA014190, AA072329, AA072325, AA014172, AA512244, AA259416, AA395985, AA717412, C78281, W61986, AA510250, AA833194, W30012, AA032516, C79954, AA596579, AI048618, AA939912, AA059596, H39328, H39389, W06387, AI044039, AA550283, AA107123, AA957502, AA697927, AA902002, D71747, C62166, D28215. AA497283, AA849396, D39166, H32867, AI008005, AA786815, D42500, H39351, AA944871. 35 AA784952.

- L32205, AL010138, AL010165, AA535623, AA780210, AA527268, W74607, AA643184, AA811726, AA004205, AI038928, AA854206, AA216596, AA825778, W68201, N28891, AA001737, W45570, AA433927, N30763, AA431793, AI027706, W30934, AA630321, W94384, H49322, AA603729, N25768, AA610141, AA490320, AA678487, AA205308, AA148861, W90372, AA424324, AA214609, H44141, AA430583, AA486288, AA329745,
- 45 AA774128, W02793, AA165561, W04711, AA864358, AA971954, R82009, AA318373. AI034146, AA953621, W92013, AA996354, AA648400, H49323, N73273, N20849,

40

AA766793, H97860, AA693353, W15581, AA485269, R22948, AA007422, AA287628, AA779558, N67842, H10401, AA552090, H97575, H01442, AA114829, Z28536, AA579359, R82061, AI004353, AA804853, W68202, W67753, AA025396, AA513115, AA775160, AA777768, AA702752, R81522, H69533, R34243, H48804, N62700, H48810, T97005, H44062, AA114952, AA628646, C02732, AA025477, AA522818, AA847619, W88844, R22141, W01459, W37320, N55020, W19783, AA200267, AA608178, AA466843, AA175464, AA611918, AA396402, AA709702, AA848917, AA849531, AA957315, AI009528, AA550586, AA697047, AA605604, Z46823, AA650644, AA413366, C30585.

10 SEO ID NO:653

U15617, X95227, Z35849, U82293, U46745, U26742, X95226, U46744, D13643, X70844. Z79791, U76713, Z50178, U40951, J03914, AE001179, M99412, Z61539, U11869, U41992, 15 AB002770, AF038554, AF015250, M61219, AC003013, AA489309, D56210, D52988. AA134434, AA682981, AA903135, D54461, Z19998, AA318031, AI016394, AA687778. AA993774, AA768498, AA670296, AA035115, AA147779, AA563593, N75319, AA744934 AI004714, AA628513, R99348, AA908522, AA609007, W60915, T91101, AA883925 AA532972, AA676251, AA780331, AA720792, AI002166, AA845320, AA412533, AA421332. AA417085, W61055, W47586, R46294, AA405908, D54607, N99465, AA287070, AA428819. 20 N28019, W52766, AA370066, T61686, H57505, N64300, AA482324, T73126, T60392, AA333707, AA327943, AA349028, AA489271, AA437333, W20481, W16625, AA501746. AA349277, AA479601, AA531557, H13595, R98916, AA305667, N40910, T35084, W38703. AA010090, AA022574, R94313, N78294, W56641, R91009, H58456, W76076, AI022640, R27744, W04829, AA005123, AA010323, AA403237, AA631040, R29030, AA827225 AI033757, AI042269, H59419, AA293537, T27962, W60575, D53706, W04770, AA313389. AA666669, AA571981, C76660, C76658, AI035391, C85948, AA240590, AA919731, AA498824, AA762165, AA386664, C79954, AA673446, AA259416, AA959223, AA272334 AA646012, AA510541, AA154530, AA008773, AA000331, AA288429, AA657001, AI006462. AI048383, AA982490, R75019, AA571971, AA027546, AA036334, AA510889, AA796514, AA537566, AA958507, W20716, AA265324, AA023384, AA016936, AA423763, AA801268. AA875628, AA651368, AA866323, C24953, AA894266, D49047, H32867, AA850861. D69875, AA956796, AI008005, AI032448.

SEO ID NO:654

Z99273, U67953, Z81313, AC002465, AE000023, AI005405, AA770285, AA657756, AA974792, H21277, Z26749, AA836701.

SEO ID NO:655

Z95152, AP000021, AC005142, M60558, D52988, AA134434, AA489309, D56210,
45 AA318031, D54461, AA329851, Z19998, AA330339, W31813, AA045969, AA148860,
W03446, AA682981, AA372730, AA578590, AI035391, C76658, AA919731, AA240590,

C76660, C85948, AA571981, AA666669, AA498824, AA388943, AA762165, AA472537. AA122715, AA667205, AA667224, D76492, AA666871, AA709900, Z81222, AA676087. D69875, M75876, C08849, N21886, D49047, D73949, C24953, AI035168, AA799646. AA817960, D75318, D74916, M89450.

SEO ID NO:656

5

U49830, AA527268, N28891, AA780210, W68201, AA535623, W94384, AA431793, 10 AA854206, W74607, H49322, N25768, AA004205, AA643184, AA811726, AA214609, AI038928, W30934, AA216596, AA630321, AA001737, N30763, AA433927, W45570. AI027706, AA825778, AA971954, AA603729, H44141, W90372, AA610141, AA490320. AA148861, AA678487, AA205308, AA424324, W92013, AA486288, H97575, W04711, AA430583, W02793, AA165561, R82009, H49323, AA114952, N73273, AA774128, 15 AA864358, AA953621, AI034146, N67842, W68202, AA329745, AA318373, W15581. AA779558, AA648400, AA693353, N62700, AA996354, AA804853, AI004353, AA766793. AA485269, N20849, H97860, AA114829, AA025477, W31657, AA579359, AA216543. T97120, AA628646, AA007422, AA552090, H10401, AA287628, AA513115, Z28536. AA775160, R22948, R82061, W67753, H01442, AA025396, AA777768, AA702752, R81522,

H69533, R34243, H48804, D78892, H48810, C02732, H44062, T97005, T35994, Z19475, W90371, R58722, AA175464, AA200267, AA611918, AA466843, AA608178, AA079914. AA396402, AA183321, AA790566, AA863792, AA396152, AA960524, C87361, AA183584, AA863529, W36441, AA288151, AA117622, AA547224, AA444663, C80271, AA848917, AA849531, AA957315, AI009528, AA850803, N55612, AI044720, C54804, D22377. AA997400, D39911, W63171, AI012441, W63192.

SEQ ID NO:657

- X58153, AC003700, AC004245, Z50071, M30637, M30636, M30634, Z71264, M30638, U82828, D14543, M30635, Z86062, X67013, D14855, M30631, M54967, S61093, M30639, M30632, AA134490, AA159064, AA953186, H73329, R96494, H73968, R96540, H69175. H69176, N55662, R58761, AA303255, AA347299, AA669506, AA886747, AA989283. W25922, W45117, R60251, Z41321, Z43491, AA156431, H52410, N80792, N77936, R25435,
- 35 AA399012, R87450, AA104708, AA647687, AA462737, AA959332, AA472746, W29913, AA711760, AA619743, AA647530, AA183523, F15056, C65308, C65649, D36342, C22600, AA394738, AA858604, Z34567, C22479.

SEQ ID NO:658

AC002294, U38766, AF032401, AC002402, U11280, AA279210, AA581835, AI024647. N54313, N52991, AA135938, AA398451, AA805397, AA218616, AA947182, AA630611, AA779113, AA595755, AA134491, AA157993, AA134938, AA626627, AA158040, R06239,

45 AA534688, AA779904, AA809443, H68298, AI003531, AA861636, AA116036, T51634, AA678766, AA450276, AA936183, AA976920, AA911039, AA279247, AA807738.

AA809459, AA292987, N89268, AA007497, R41218, AA001925, R51333, R60061, AA460963, AA427825, T17090, Z39514, R51518, AA001787, R44963, AA163071, AI036451, N98055. AA851535. AA964600. AA943738.

SEO ID NO:659

5

L13616, AC003700, Z50071, L05186, Z66499, Z98748, AC004245, Y15465, Z68760, AL009147, AC004537, AA116035, AA158654, H73968, R96494, AA333019, H69176, AA135066, N55662, AA306686, R58761, R60251, H05371, Z43491, W45117, W25922, AA953186, AA747180, R68966, AA134490, AA214233, AA074259, AA399012, AA160995, W53000, R85615, AA574060, A1024307, D29335, N44546, AA084308, R25435, W29913, AA940093, AA619743, AA511748, AA261674, AA647530, AA538165, AA982993, AA545089, A1036424, AA529339, AA879985, W62457, AA254472, W75639, AA208822,

- AA004009, AA409878, AA138461, AI021080, AA616351, AA543930, AA959058, AA499502,
 AA475012, W63887, AA795180, W34789, C85296, AA789667, AA062063, AA547678,
 C78232, AA109026, AA277809, AA269482, AA260214, AA238079, AA791781, AA109714,
 AA106556, W91188, W65867, W14105, W07936, AA980059, AA606818, AA637257,
 AA623142, AA615444, AA387662, AA059859, AA000704, W35722, AA959936, AA590762,
 AA414947, AA397041, AA389361, AA108256, W53991, W47904, AI036933, AA666729,
 W12225, W13053, AA789863, AA691401, AA589224, AA499829, AA754939, AA265414,
 AA243924, W82018, AI006283, AA960390, AA940209, AA815912, AA217857, AA623139,
 AA615486, AA607101, AA473102, AA276565, AA198445, AA182161, AA08144, C88603,
 AA840191, AA727235, AA667550, AA655635, AA646144, AA624299, AA543548.
- AAS90150, AA549660, C65308, D36342, C65649, C22479, AA875582, AA193756, C22600,
 AA650866, C35248, H35407, AA841414, AA509175, C35507, N37412, T43566, AA819961,
 A1011305, T37927, T43575, A1026540, AA685518.

30 SEQ ID NO:660

AC002294, AL031005, U11280, X54108, AF068865, AA595755, AA157993, AA450276, AA158040, AA779904, H68298, AA861636, AA292987, AA936183, AA807738, AA279247, AA136254, T51792, AA279210, AA581835, AA805397, AI024647, AA218616, N52991, N54313, AA135938, AA398451, R29286, AA678766, AA947182, AA134491, N89268, AA134938, AA809443, AA630611, AA779113, R06239, R41286, AA534688, AA001787, AA062924, W19463, AA001925, AA315968, T65605, D59188, AA896634, AA607867, W91279, AA008398, AA163071, AA943738, AA964600, AA899773, AA851535, AF061647, AA800313, AA754101, C60136, AA892252.

40

SEQ ID NO:661

X58153, AC003700, AC004245, Z50071, U05230, L14595, Z68760, L19444, U82828, AA134490, AA953186, R96494, H73968, H69176, AA159064, N55662, R58761, AA116035, H73329, H69175, R96540, AA669506, AA347299, W25922, H05371, R60251, W45117, Z43491, AA214233, R99846, AA399012, N80792, AA829863, R85615, D29335, R25435, S R87450, N44546, W29913, AA711760, AA619743, AA511748, AA647530, AA183523, F15056, D36342, C65308, C65649, C22479, AA858604, AA394738, C22600, Z34567, AA875582, AA661100, AA246101, C90912, T43566, C90225, A1013370, AA901147, C90941.

10

SEO ID NO:663

AC002294, AC002402, U11280, AA279210, AA581835, N52991, N54313, AI024647, AA135938, AA398451, AA218616, AA805397, AA947182, AA595755, AA630611, 15 AA779113, AA157993, AA134491, AA134938, AA626627, AA158040, R06239, AA534688, AA809443, AA779904, AA861636, H68298, AI003531, AA450276, AA116036, T51634, AA678766, AA936183, AA976920, AA911039, AA279247, AA809459, AA807738, AA292987, N89268, AA427825, AA460963, R60061, T17090, Z39514, R51518, AA001787,

AA001925, R51333, R41218, AI036451, N98055, AA680515, AA754101.

C35248, C35507, AA650866, T43575, C89939, T20877, M89254, AA509175, N37412.

SEQ ID NO:664

X77775, U23183, U08424, AA496841, AA404288, AA723349, AA360888, W31361,
25 AA338858, R34209, R18200, H46243, R18965, AA285293, AA384769, W45400, T98727,
AA961263, AA370221, AA081534, AA359557, AA292148, W31566, AA088317, AA234934,
AA908513, AA446803, AA416456, AA795971, AA240122, AA245397, AA920520,
AA692621, AA759494, C86923, AA238578, W97258, AA222646, AA655219, AA893872,
AA978469, AA264996, AA694953, AA390518, AA2631890, AA949758, AA694972, W66565,
AA735504, AA802703, AA264199, AA263929, AA264168, AA940694, F13855.

- 35 Z83226, Z81584, Z11547, X85124, Z93386, L40064, AF077409, X70058, U75698, S71251, U93872, Z12297, U57623, Z47071, L04694, AL021889, Z92954, X6770, AA633258, AA133416, AA600287, T09468, AA665309, N24211, W30771, H87145, N42369, T31042, W02518, AA897191, T70084, AA179734, W03225, AA331636, T54480, AA197191, AA643516, W25677, AA133029, AA429285, AA485516, Z20993, N54094, AA469401.
- 40 N36058, AA468795, AA232926, AA976627, AA968817, AA989208, T35134, N57107, AA876081, T35135, T35140, H39913, AA369394, AA693763, AA375648, AA057186, AA938966, AA560005, M62055, H68885, R12077, N29541, AA502313, AA503237, AA528329, AA825985, R24092, AA878673, AA521418, AA577052, AA780434, AA976558, R16054, AA056958, R50068, AA396161, AA547039, AA711435, AA509931, AA921025,
- 45 AA675673, AA522332, AA863643, AA816116, AA553002, AA210060, AA396324,

AA261181, AA921487, AA563375, AA012742, AA394675, Z25701, D72478, AA997156, C08087, AA736078, AI011604, AA051811, C58313, C56729, C36179, AA660386.

- D87675, AF001549, Z85996, AC003684, AL022165, AL021155, U91323, U91318, Z84466, U14567, AF053356, AC003108, AC002314, Z82198, AE000658, AC004491, Z77249, AC002310, AC000120, AP000050, AC002550, U91321, AF001550, Z82171, AC004383.
- 10 AC003046, AC002350, AC002349, AC002549, Z95115, AC004656, AC004538, AC002394, Z99943, AP000044, AC000003, AF038458, AC004638, Z82244, Z84721, AD000092, X87344, AC002404, AC004253, AC004804, U47924, AC003026, Z93023, Y10196, AC003101, AC004539, AC002480, Z97054, AC004598, AL021154, AJ003147, U63721, U62293, U82668, AC002551, AL009177, Z84469, Z68279, AF045555, AC002378, Z82206, AC002400,
- 15 AC003037, AC002288, AC002300, AC003104, AC004088, AC002982, U91326, U62317, AC003682, U52112, AC004084, AC003695, AC004583, AC002126, U85195, AC004073, AC002128, AC003007, AC002481, AP000008, Z86064, AC004646, AC002492, AC0044447, AC002302, AC004706, Z98750, Z98050, Y07848, Z84480, Z82190, AC005206, AF003626, AA582842, AA534054, AA633540, AA487071, AA745638, AA180487, AA878105.
- 20 AA775332, C75350, AA100431, AA984355, AA682635, AA310556, AA229904, AA252596, AA229905, T93092, AA809926, AI050699, H47413, AA376303, AA878106, AA376107, D80026, AA354019, AA309567, AA112947, AA716522, AA341699, D30826, U46318, AA015725, H47430, W39287, H91293, AA188940, AA653226, AA814389, AA228349, AA936548, H24953, W60522, AI003797, AA772906, AA228338, AA658823, AA522811,
- 25 AI002945, C14692, T52478, AA515631, AA643211, AA569591, AA547955, AA547970, AA454610, AA258216, AA458534, F19369, N58133, R97701, AA533534, AA112924, AA916168, AA994233, AA975736, H17731, R18870, AA535216, R22698, AA548488, AA633361, R76565, AA683130, AA600957, R08010, AA593370, AA593510, AA634252, AA605257, AA644545, H54640, AA730672, AA730646, AA234445, H51061, N74747.
- 30 AA287103, AA568490, AA570255, H66503, AA602233, F00886, AA176149, R78915, N66556, R22772, N47721, R56162, AI023375, C88193, C87864, AI042727, AA261001, W64166, AA516629, AA517646, AA516955, C88111, AA501262, W71517, AI042710, W64884, W51648, AA501297, AA472555, AA63060, AA108381, AA435247, AA059835, AA059837, AA518813, W62377, AA474026, AA087147, AI046782, AI006950, AA475982.
- 35 AA166247, AA920903, AA175641, AA470242, AA562102, AA710135, C76134, AA155213, C76357, AA537471, AA163800, AI042687, AA473310, AA467340, AA422893, AA939431, AA690147, AA117299, W97594, AA656883, AA561751, AA509771, AA734564, AA499521, AA189435, AA543732, AA989871, AA386489, AA684285, AA823826, W70369, AA286286, AA516943, AA237468, W30521, AA153747, AA451001, AA510369, AA815851, AA177723.
- 40 AA415875, AA763476, AA110234, AA762876, AA120680, AA596459, AI005803, AA052145, AA254179, AI006123, AA267378, AA277780, AA863851, AA500278, C78950, AA492839, AA562469, AI044039, W06387, AF064463, AA923995, AA550283, Z69971, C07198, H39389, H39328, AA924608, AA874831, AA964062, AA997498, AA585956, AI011582, T42193, H31758, AA875363, W06750, AA800963, AA943496, AA965186, AA800915, AA892677,
- 45 F19756, AA946370, C08940, AI044701, H39330, AA859245, H31782, AA818187, AA851082.

AA924761, H39426, AA997533, AA788202, AA850744, AA901063, H34814, H33988. AA926052, AA818279, H32774, AI044531, AA892034.

5 SEO ID NO:667

AB011483, Z97340, Z81509, AC000114, Z81035, AB005236, AB005237, AC002347, U51998. AC004544, AC004423, AA194905, AA164603, AA286755, AA167119, AA167166. AA830263, AA780686, AA883108, AA570671, R07429, AA846247, R37843, W31896,

AA700665, AA384214, N56664, AA662688, AA101303, AA251009, AA934904, AA639524, AA576142, AA173179, AA587617, AA489636, AA179823, AA355210, N66989, AA811032. AA747929, AA418381, AA642577, AA976976, AA639805, AA680117, C16576, AA582928. AA466811, AA465808, AA066612, AA058086, AA153086, AA289102, AI037727, AA542049. AA395238, AA800765, AI045514, AI010045, AA892549, AJ227626, AA944513, AA114344. 15 AI010261, AA966104, D70973, D86657, AA849991, AA998805, AI008014, AA785729.

AA698820, AI007772.

SEQ ID NO:668

Z95328, AC004384, Z99281, L31840, AL021497, U67488, AF016662, AJ223044, M16396. M16340, M19871, Z68116, M16339, M16341, AC004369, AF030371, M27300, AL021816, Z36064, Y00513, X03282, AC000030, X58120, Z36065, U33002, U91967, AC000118. U63851, D87001, X85787, D89503, AF030368, M21696, Z21487, U17903, U09239, Z83335. U09185, AE000539, U64847, AA863014, W52480, W56770, AA765427, AA814246, AA873647, AA770312, AA732557, AA568651, AA865009, F01265, AA749297, R37952. N31652, AA044338, AA153880, AA048428, AA250241, AA254286, C87516, AA203782. C80655, AA267861, AA267128, AI047568, AI036356, C87806, D15181, AA957150, C62926, AA840894, C92658, T01937, T00926, T02209, T00295, C94356, D71947, D71783, T01675 D71622, N98004, C25514, C61667.

SEO ID NO:669

- 35 X97043, U04807, AC003677, AF037335, AF051882, L81669, AC004593, AL021528, Z68756. AA121077, AA326735, W48794, AA236101, H45963, AA459151, AA354204, AA084808. AA676879, AA593002, R55174, X97508, T75179, F12881, AA368125, AA151754, AA603238, AA452311, R53168, AA723764, T60040, U66687, AA897427, H17207, W95372, AA812708, H60893, W95482, AA856806, AA160710, R34891, AA317271, Z19829, W75898,
- 40 AA856358, AA003370, W08075, W82868, AA690102, W11129, AA107435, AA089155. AA017868, AA048690, AA727479, AA461833, AA562528, AA562230, AA562930. AA727629, AA145018, AA672796, C80733, AA855999, AA986604, Z31226, AA000432. AA124754, W11318, AA061359, AA466218, AA856003, W13943, AA032724, D85585, AA817504, AA978764, AA978729, AA202155, C19540, AA539419, AA924434, AA858819,
- AA697379.

SEQ ID NO:670

AL020992, AF068865, AE000006, L23176, D00814, D87664, X90947, AC002531, L08802, M35138, L06465, X87940, X13369, U49642, L23432, U08440, M89798, M35134, M35135, AC002378, M35137, D38508, M35136, Z96234, U24680, AA458937, AA889703, AA653968, W49620, AA642981, T57200, AA593002, AA725435, AA903402, AA027201, AA255819, AA084809, H61158, AA399478, AA293409, H62064, AA676879, T55953, AA027200, AA454941, T90533, H17823, R42888, R69560, AA184206, AA606789, W53759, AA509752, AA867237, AA103584, AA107134, AA681567, AA963531, N41264, AA022366, AA415130, AA786747.

SEQ ID NO:671

- 15 D26549, X78479, U04354, Y13971, AF059486, AF041448, 104953, AF041449, X65371, Z29534, AB009484, X66975, AP000003, X62006, X60648, J03781, X65372, X93009, X60790, X52101, X60789, X74565, Z68104, X13871, AL008720, X13319, U31699, M97227, AE001101, X68039, D16513, X04412, U55045, D10444, X98992, AA297223, AA173831, W94379, AA767369, AA402710, N78981, AA477793, R82023, N24229, AA398270,
- 20 AA287246, AA402311, R83487, R64484, AA464394, H42351, AA366630, R81856, R78362, AA534882, AA401797, AA430707, AA459584, AA541397, AA250858, AA452232, AA454901, R66518, AA404457, AA463569, H26083, W60964, AA188584, R15617, H42803, AA991699, AA292928, AA978201, AA991330, H26306, AA700488, AA855151, AA994947, W45721, AA743326, AA782612, AA743280, H62221, AA017180, AA019754, N98954,
- 25 AA612690, AA994943, AA472387, AA511598, AA473866, AA462522, W54664, AA562254, AA762354, AA409040, AA667740, AA103223, AA543962, W80100, AA592243, AA691889, AA067051, AA239612, W74992, AA510839, AA880330, W98896, AA555737, AA032335, AA000407, W42118, W98220, W29218, AA423745, AA674212, AA624932, AA241020, AA472546, AA140271, AA880506, AA212842, F14654, D47825, F13580, D15888, C67840
- 30 N65841, T45717, T44358, T43447, AA391093, AA438301, R90252, R65202, AA392664, T43199, AA951952, R64841, T43329, L33593, AA391723, T46026, T04745, U74156, AA264205, R30497, AA979157, R64741, AA996847, T45716, AA540501.

35 SEO ID NO:672

- AP000034, AE000036, AE000046, AE000035, U35013, AC003080, AE000004, Z54140, M60558, AF029304, U09871, U26310, Z70691, U93196, Z75746, AB009529, Z75893, AL021469, AF043105, AL022153, J00332, U15617, U49830, M34482, AE000002, AC002287,
- 40 AE000054, M29930, AA527268, AA007407, N28891, AA431793, AA780210, W92012, W74607, AA004205, N25768, C15995, AA114952, AA630321, AA854206, AA643184, AA216596, W45570, AI038928, AA811726, W90371, AI027706, AA001737, N30763, AA424428, W90372, AA603729, AA045835, W92013, C17881, AA610141, AA148861, W03446, AA216543, H97575, AA490320, AA535623, AA490420, W31657, W31813, N304246, AA216543, H97575, AA490320, AA535623, AA490420, W31657, W31813, N30426, AA216543, H97575, AA490320, AA535623, AA490420, W31657, W31813, W31816, W31816,
- 45 W94384, N57577, W04711, AA310731, R76992, AA424324, AA486288, AA678487, AA011500, W68201, C15934, N73273, H49322, W02793, AA214609, AA165561, AA011499,

H10609, AA864358, N67842, AA953621, W68202, Al034146, D78892, W15581, W30934, AA903135, AA693353, H49323, AA336381, AA205308, AA648400, AA971954, H97860, H69988, Al004353, AA485269, N20849, AA804853, AA766793, AA513152, AA433927, H44141, AA206741, AA454142, AA485268, N62700, AA114829, T97120, AA299424,

- 5 R81774, AA377665, AA682981, R62712, AA825778, AA007422, AA552090, AA917730, AA579359, AA348162, D52988, AA489309, AA175464, AA727854, AA059823, AA200267, AA140441, AA032863, AA4668473, AA611918, AA267387, AA760526, AA608178, W45747, W97332, AA096662, AA086866, AA896228, AI019235, AA789939, AA647949, AA561771, AA666669, AA590556, AA822900, AA560406, AA571981, AA097088, AA396402
- 10 AA254405, C76660, C76658, AA079914, AA822893, AI035391, AI006731, AA266201, C85948, AA919731, AA240590, AA791055, AA666667, AA726236, AA799210, AA433607, AA645630, AA762128, AA166173, AA268016, AA498824, AA881031, AA72699, W07991, AA623299, AA874625, AA200448, AA444663, AA183321, AA863792, AA472424, AA960524, AA560556, AA396152, AA116991, AA790566, D18314, AA894335, X89996, AA874521, AA894017, AA67318, M23867, A090687, 20007, M2307, AB2678, AB2
- 15 AA849531, AA848917, AA957315, H33866, AI009528, Z81222, H32405, X93228, C06826, T43652, AA801268, C23790, C32716, AA676087, AA141062, AA605573, Z18210, D39911, D22377.

20 SEQ ID NO:673

X58153, Z50071, AC003700, AC004245, M30638, AL021880, M30639, M54967, D14855, Z97200, X67013, M30632, M30636, M30634, Z68760, M30635, Z71264, M30631, M30637, D14543, S61093, H73329, AA134490, AA159064, R96540, AA95186, H69175, R96494, H73968, H69176, N55662, R58761, AA303255, AA116035, H68297, N99809, AA007687, N74723, R07190, N90964, AA680414, N72663, AA347299, Al0325560, Al040579, Al040370, AA669506, AA702663, AA989283, AA699880, Al052331, H50729, AA886747, AA677544, R98098, AA680079, N64446, N39020, N72788, AA701900, AA705447, Al052220, R10244, R165377, N53150, W01627, W25922, AA700016, N63669, Al032838, Al051607, T69778, H73025, N52226, H79535, T64986, W86506, AA776291, Al021907, AA679301, A1022335, T67130, H66256, H54609, H05371, N57770, R06843, A1051936, N53062, N64734, W86031, Al032477, R89438, H48262, H57697, H69675, H72606, W88659, AA011440, AA034177, AA694393, T97819, R86883, R97887, Al033339, AA704799, AA679426, N68756, Z43491, Z41321, Al022708, W04439, AA704457, AA011414, N57791, R07710, W45117, AA769855,

35 AA704816, R25435, AA104708, W29913, AA959332, AA647687, AA472746, AA462737, AA711760, Al046986, W75714, AA172863, AA511748, AA759397, AA874539, AA619743, AA183523, AA427065, AA647530, F15056, C65308, C65649, D36342, AA875582, C22479, AA394738, AA858604, Z34567, C22600.

SEQ ID NO:674

40

AC002294, AC002402, AL031005, U38766, U11280, AF068865, X54108, AA279210, AA581835, N52991, N54313, A1024647, AA135938, AA384851, AA597555, AA157993, AA218616, AA805397, AA450276, AA947182, AA630611, AA158040, AA779113, AA134491, AA134938, AA779904, AA626627, H68298, R06239, AA534688, AA861636,

AA809443, AI003531, AA116036, T51634, AA936183, AA292987, AA678766, AA807738, AA976920, AA911039, AA279247, AA136254, T51792, AA809459, R29286, N89268, R41286, AA896634, AA607867, W91279, AA163071, AI036451, AA008398, N98055.

SEO ID NO:689:

M11560

10 SEO ID NO:691:

U60276

SEQ ID NO:692:

L19605

15

SEO ID NO:694:

20 U55766

SEQ ID NO:696:

AF070717, U14571, Z73429, AC004785, M82819, AA773566, AA098877, AA279517,

25 AA886992, AA629913, N69507, AA279518, AA132750, C15093, W48755, AA630713, W92961, C15141, AA669834, R76765, W92962, AA598682, AA454107, AA224364, W65387, AA098876, AA863200, AA452524, W61291, W72931, W94226, AA992646, W48754, AA580701, AA219402, AA364030, AA828979, AA320709, AA197313, H22885, AA633244, AA470899, AA374705, AA311692, AA903014, AA315870, AA224225, AA809964, F00274, AA206468, AA720732, R92404, AA628627, H57826, AA357307, AA663966, T48872, AA526193, AA130501, H63193, A1049996, AA631497, AA632479, AA593471, H74314, T78484, AI016704, AA515046, AA190895, AA983692, H05073, N64587, AA730581, W23546, AA077776, AA720702, AA655005, F17700, AA878149, AA972238, AA491814, AA635442, AA654761, R92629, N54902, AI049634, AA973803, AA493170, AA714956, AA838161, AA662974, AA068993, AA830594, AA601405, AA5584448, AA553448.

AA904211, AA493708, AA823826, C88111, W64166, AA501262, W61986, AA516955, AA501297, AA516629, AA517646, AA474026, AA517461, AA415875, C87438, W64884, W51648, AA863851, AA501128, W62377, AA501217, AA575771, AA815883, AA855776, C87922, W71517, AA068629, AA414457, C77110, AA547030, C78926, C86532, C79035, C79044.

SEO ID NO:697:

45 Z86000, AC002316, AP000030, AC000026, AC002059, L48038, AC002094, AC003086, AC002476, AC003982, AL008706, AC004790, AC002070, AF001549, AJ003147, AC002312,

- Z82190, AC002565, Z99943, AC002400, AC003037, AC004703, Z98941, AC004257, AP000045, AC002431, AC004132, AC004417, AC003108, AF031078, AF030876, AL020997, AB001523, AC002477, AP000036, U91319, AF029308, Z97054, AC002288, Z93096, Z93023, U91323, AC002563, U91321, AC002350, AC004386, U07563, AC000379, AC002418.
- 5 AC001231, M89651, AC002492, AC003047, AC004098, AC004000, AC002073, AC002041, AL009181, AC004448, AC002081, AC004552, AC002558, U91326, AC003007, AC000003, U91318, L44140, U91328, AC004496, AP000031, D87675, AC002117, AL008726, AL008715, AC004753, Z83822, AC003101, AL009179, AC004217, U78027, AL022165, AC002306, AC004125, AC004263, AC004650, AC002984, AC002314, U95739, Z97183, AC002991.
- AC002425, AC002126, AF001548, AC005261, AF001552, K03021, AP000011, Z82195, L77569, AC000072, AA708194, AA210943, H67234, AA249143, AA564343, AA460896, AA703887, N27422, AA524863, AA652852, AA070330, F03189, AA563829, AA708240, H81553, AA027351, H66391, AA074026, AA492015, AA016279, AA017169, AA059247, AA226084, H85032, H86546, AA907782, C75526, AA904282, C75403, AA572983,
- AA584845, AA581895, AA631447, AA558814, AA570132, AA479877, AA443587, D29467,
 AA601425, H70285, W03944, AA573000, AA504776, AA805552, AA019548, AA076936,
 T74382, AA669741, R63301, AA911579, AA100000, AA405922, R96104, AA405798,
 AI039754, AA936552, H73438, H72645, AA513484, AA613626, N30650, AA729755,
 AA015649, N30876, AA629963, AA701047, AA719745, AA995809, N25303, AA708108.
- 20 AA703675, W31678, F00320, AA132912, AA501554, AA297441, AA719726, AA572971, AA513920, AA513231, AA527816, AA527841, AA481786, H62779, AA502683, AA365605, AA300061, AA525112, H03240, AA693366, AA904137, N32030, AA947763, AA740571, AA741403, AA503407, F11809, AA552955, T52478, T47739, W62377, AA986140, AA415875, W71684, AA516629, W51648, AA516955, C87864, AA517646, R75183.
- 25 AA501217, AA867834, AA863851, W71592, C88193, AA022287, AAS5782, AA265984, AA014476, C88111, W64166, AA261001, C81458, AA501297, W13408, AA879521, AA823826, AA762317, AA863783, AA174375, AA466109, AA472372, A1037679, C78321, AA856422, AA501262, AA561605, AA682115, W15812, AA562507, C86532, AA267728, AA516885, C78142, C79245, AA791588, AA815851, AA210215, AA462028, AA510149.
- AA517461, AA792334, AA793827, W62885, AA546569, C80153, AA139062, C87922, AA501128, AA711449, AA596816, AA023668, AA691333, AA427026, C78137, AA881322, AI019259, AI042727, Z69957, H39330, AI029425, AA550283, H39426, H39321, Z30905, H39389, AA923995, AA893827, AA550568, H39351, AA891239, H39328, AI010256, AA892653.

SEQ ID NO:698:

- X76301, Z25469, L27439, X90848, Y09136, U70842, S77125, Z82265, U38906, AC004736, Z35597, Z72662, Z99496, Z73986, L13467, X99960, L22013, U73815, Z79603, AA167732, AI028439, W23466, AI025463, AA845457, AA446584, AA043787, N80102, AA286851, W15520, AA203214, AA136335, AA564286, W27182, AA046141, AA055206, AA136421, H01905, H27226, T32454, R52017, N64668, H68649, AI022543, Z43295, AA307987, AI033772, AA286852, AA312142, AA043659, AA449604, AA446711, D79463, AA046315.
- AA860727, D79474, D62331, D79449, T31687, D79486, AA582111, AA449345, D62277, D62267, AA055207, D79511, H01906, T30278, N43872, T30197, AI022561, AA034316, D62327, AA772965, R46766, D79478, AA676250, H28580, H24499, H83920, AA953574.

AA167827, D62359, D62179, R23692, D62237, D79476, T30198, D62209, Z39370, AA639113, AA654964, R52018, T10740, W31603, W76194, AA897292, R77246, R57121, R26648, R57863, AA969689, D45818, AA574016, T82850, R11787, H21441, AA809133, R13326, R20026, H47489, W92053, W92070, H50376, R28033, AA769318, AA768972.

5 AA804195, AA990143, AA217311, D77641, AA175735, AA475195, AA197681, AA146435, AA790755, W64796, AA914314, AA116274, H34812, C46456, D48721, H91524, C48250, C35709.

SEO ID NO:699:

10

U66300, AF039698, AF045432, U48696, S78798, U39066, AF033565, U65376, U52868. Z97178, U44386, AF027174, U37573, Z49980, AF033096, S83098, AF033097, AJ001103, U34048, Z86001, U41811, G29058, G29060, X99051, U95741, U48697, X99055, AC004082. U67560, U67566, AB011131, AL010216, Z81505, X67633, X57314, AF040658, X71612. Z46787, AF037228, AF037229, Z98549, AC003683, Y14079, Z97183, Z99109, Z81101. AC004429, AC002432, L05186, AF017104, U92821, AC004740, AC004774, U73642, U67608, U64845, Z83644, X89633, D11078, Z83230, Z75180, AA628768, AA877858, AA639879. AA928423, AA534765, AA948368, AA046419, AA476488, AA282062, AA041386, N39225. AA534439, AA970486, T65110, Z78323, R60033, T26967, F11018, H72635, T30561, R60095 Z39551, AA328209, F02192, AI002843, AA828237, AA191158, AA551155, AA324937. AA102729, 744175, AA777928, AA041426, F04498, AA907747, AA328003, T65177 AI031820, T34427, AA247964, N84830, AA096046, N83168, H58760, N87989, AA089553. N55684, AA095641, N84855, N86694, N84048, N88782, AA093224, N88601, AA471338, N83991, N84718, AA247827, AA096066, N83992, N83993, N84712, N89520, N55698. 25 N84723, N88496, N84828, AA093861, N88518, N84016, N84721, N56118, AA089554. AA094237, N84561, N55641, AA095359, N56555, N84602, N84733, AA215911, N55681, N84735, N84764, AA215908, N84874, N55658, N84720, N84734, N84736, N84722, N85900, AA249064, N84873, N87317, AA248551, N55697, N85031, N84563, N85930, AA122510, C76291, AA462169, AA542055, C79890, AA756608, C76124, AA207595, C76125,

AA461732, AA120499, AA170909, AA960229, AA871528, AA415746, AA929682,
 AA896234, AA896879, AA269666, AA2885591, AA674497, W77478, W83646, AA067612,
 AA921455, AA208274, AA511095, AA139335, AA140492, AA799531, AI009181, AF041408,
 AA933116, AA933363, C84183, C93176, H36589, C89903, T21289, AA509249, H76948,
 AA824745, AA550122, H07815, H07829, W51717, C28309, AA550098, Z35390, AA856224,
 AA933118, AA752407, AA962878, AA433419, AA819970, D37699, AA394851, D67990,

AA957045.

SEQ ID NO:700:

- 40 AF071059, U00951, U00960, U07155, U07156, X84692, X98265, X98264, AC004226, U40411, M74208, U10324, U40944, X75560, U52953, AA044715, AA115936, N32662, T55974, AA133605, W27456, AA361607, AA065527, AA382890, AA005068, AA313921, W26569, AA344680, AA558006, AA007334, AA371086, AA343153, AA460042, AA045654, AA036884, AA804323, AA705224, AI002996, T50389, T50520, Z28526, T32573, R99233,
 45 AA007333, AA370178, AA370142, N92665, N58504, AA807087, AA884767, AA233365.
- 45 AA007333, AA370178, AA370142, N92665, N58504, AA807087, AA884767, AA233365, AA282826, AA601060, AA969488, T35242, AA807029, AA182543, AA181535, AA232979.

AA092778, AA649579, T55495, AA322086, AA348254, R34591, AI033827, AI033853, H88859, AA160255, AA329975, AA487643, R31743, AA475064, AA146372, AA871140, AA253642, AA003881, AA796077, AA062333, AA146239, AA087712, W41927, AA920431, AA555969, AI050529, H33770, H34706, D67255, H36826, AA900197, C61845, AI029124, AA882920.

SEQ ID NO:701:

M29204

10 SEQ ID NO:702:

Y09136, X90848, X76301, U38906, L22013, Z79603, Z81546, X99960, Z72662, W23466, N80102, AA286851, H01905, R52017, AA312142, H68649, AA043659, Z43295, AA449604, AA446711, AA203214, AA307987, W27182, T31687, AA136421, AA055206, T30197, AA582111, T30278, AA167827, R23692, AA639113, AA654964, N43872, T10740, H27226, R57121, W76194, W31603, R57863, AI025463, AI028439, AA046141, AA845457, AA446584, AA167732, H24499, AA043787, AA564286, W15520, D45818, AA574016, AA990143, D77641, AA154680, W64796, AA790755, AA914314, AA197681, AA265989, AA116274, BH34812, C35709, D48721.

SEQ ID NO:703:

D87666, AF064864, Z76735, AF000982, AC002340, AF042091, Z72501, X53511, U12386, M88113, Z36949, AC004359, D26533, Z35776, U40270, Z93785, Z50875, X03836, Z82266, AC001230, X68577, Z35775, AF001541, AA057400, AA047729, W87409, AA135796, R15559, N44337, AA702504, AA063629, AA742976, W32615, R85128, AA551773, AA447039, T06399, AA490913, AA847112, T07082, W96278, AA248197, AA229639, AA682900, AI005156, AA410455, AA091945, AA569443, AA40439, AA578709, AA489032, AA747664, AA769234, AA324390, H82736, C00609, AA282819, AA935217, AA730269, AA618569, AA778231, AA285040, H39480, AA628054, AA837128, AI005305, AA639286, AA987311, AA903597, AA902853, AA829062, AA610424, AA285126, N66825, AA903377, AA972586, AA632521, AA916359, AA578123, AA988499, AA639300, AA525374, AA631485, AA551141, AA973657, AA631901, AA903366, AA847109, AA099080, AA678350, AA604839, H53720, AA534137, AA632574, AA578021, AA640251, AA491100, AA602054, AA094372, AA026758, AA557760, AA935064, AA658510, AA707898,

AA602054, AA094372, AA026758, AA557760, AA935064, AA658510, AA707898, AA652476, AA886007, AA578255, AA468230, T69729, AA502198, AA837609, AA748046, W80468, AA470337, AA780352, AA665155, AA935201, AA564552, AA135797, AI032579, AA973283, T07200, AA733538, AA710939, AA138470, AA432980, AA210614, AA413542, AA413526, AA563275, AA656898, AA116750, AA498634, AA986621, AA174767,

AA41526, AA563275, AA656898, AA116750, AA498634, AA986621, AA174767,
 AA919930, AA895374, AA896038, AA733538, AA710939, AA138470, AA432980,
 AA210614, AA413542, AA413526, AA563275, AA656898, AA116750, AA498634,
 AA986621, AA174767, AA919930, AA895374, AA896038.

45 SEQ ID NO:704:

D82348

5

SEQ ID NO:705:

Z97178, AF045432, U48696, S78798, U66300, AF039698, U39066, AF033565, U65376, U52868, U44386, U41811, AF027174, Z95703, AC002528, Z49980, U37573, L35736, L19494, L13454, Z25420, L49403, U66476, H10716, N83168, N83993, N84048, N84712, N66694, AA247964, H58760, AA093224, N84855, N87989, AA096066, N89520, N56555, N56118, AA959396, AA867304, AA839505, AA575337, AA874176, AA168830, AA546447, AF041408, AA735772, AA695603, N65781, AA923869, AA943734, AA532298, AA945166, Z48405, AA926333, AA933285, AA800020, AA901275, C45122, AA957144, AA850173, AA996777

15 SEQ ID NO:706

AL022394, AC004552, Z97206, Z81144, AD000091, AC004744, M86524, AC003075 AC004111, AC003099, Z95126, U96629, AC000120, Z93403, U73465, AC002519, Z95326. Z82216, AC005164, AC002066, AC004259, AC002452, AC000357, AC004536, AC002379, AC004083, AL021330, AC004008, U80017, AC002538, Z77723, AC002539, AC005176 Z68326, AC004385, Z68746, AC004254, AC000049, AC004384, AC005214, Z83827, U69729. M68887, Z82205, AC005166, AC002468, Z70273, AC005161, Z95437, U71148, AC002056. Z81008, AC002426, Z70232, AL021307, AC004780, D87000, Z84470, Z68694, AP000016, AC004800, AC000365, AC003953, Z82200, AL008713, Z98754, Z84477, Z70224, AC002067, X63773, Z92547, U51244, AL009173, AC002402, AC004613, AC001608, AC002486, AC002478, N69317, AA992185, AA779937, AA826143, AA548061, F17026, AA459350, AA551109, AA299156, AA748658, AA904946, AA446110, AA489231, T06365, AA962220, AA347740, R11427, AA344409, AA767353, N84190, AA601392, AI003789, AI028382, AA890652, AA836010, AI051341, F07696, AA280689, AA744376, AA765833, AA811111, AA468571, AA493584, N26697, AA252846, AA493971, AA132716, T29138, AA069204. AI024598, AA081919, AA340015, R78997, T78394, AA902828, AA722562, AA766076, AA679855, AA852059, AA852074, N43965, AI027714, R84318, C17730, AA584498, AI032071, AA431897, AA777615, N27818, Z36956, AA129986, T06400, AA488997. AA655147, AA915228, AA986225, AA189992, AA760375, AA153172, AA760071, T41926. 35 C31566, D34395, C54206, AA057906, C84769, D32502, C07940, C93297, C55104,

AA943087, AA605420, D34506, C08204, AA257945, H35315, AA269210

SEO ID NOS:707, 709, 711 and 712:

U50839, AJ006486, X96701, AC000075, U23946, Y14428, U55853, U73690, D87469, U66348, U15972, U49056, X15750, U73123, X83976, M59490, Z46757, L11710, U06631, D43920, U26259, L04656, X15209, AF020312, U88713, U88712, S80994, AA890595, AA194477, A1040915, AA808896, AA194477, A1040915, AA808896, AA194477, A1040915, AA808406, AA194477, A1040916, AA808406, AA194477, AA194476, AA594332, AA554043, AA151140, A1049688, W95685, AI041568, AA492300, H29466, H29465, H50770, AA081057, R42909, AA083642, H91241, H50360, T52344.

N26936, N66716, H68058, AA928951, AA280393, AA934109, AA505844, AA355104, AA504565, D45524, R17569, F04483, T23042, AA247255, H61892, A1003120, D60896, A4442117, AI041522, AA301168, H92604, AA480590, AA989528, F08851, AA612865, F08256, AA969568, T52417, AA632042, AI038369, AA079461, AA367105, AA322594, AA902644, AA814598, AA372751, AA573311, U33921, H92264, W95714, AA679052, AA079462, H50677, AA85284, N80152, AA436772, AA325582, AA737681, AA770224, AA812204, R52021, R87930, R50149, AA298850, AA569993, H26500, H98164, N22864, AA281862, H72485, W28236, W38896, W76200, AA397991, AA326213, AA406569, AA810203, N26696, AA607276, AF064939, AA549397, AA718492, W11974, AA790829,

10 AA718494, AA241183, AA086694, AA914805, AA823956, AA209543, AA268319, AA794261, AI042691, C80539, AA675676, AA794590, AA930627, AA795177, AA863563, AA607084, AA794703, AA960471, C85885, AA260352, AI044485, AA851524, AA851651, AA979509, H31962, AI008699, AA539524, D48514, AA440856, C74456.

SEO ID NO:544

U79271, AC004636, AB006709, AF049105, Z28051, AF022655, Z28050, Z47074, AC004755, X75781, X61157, S48813, AF009623, D89245, M74822, AC004257, M98498. L23127, X53421, M87854, Y16899, D84549, U90567, M80776, M34073, U08438, U88309. S81843, U70850, AA886109, N51485, AA843811, AA102109, AA879456, AA829894. W72147, AA029201, AI033069, AA161465, AA812519, N64528, N51277, H99906 R71679, AA744290, AA099913, AI038590, AA083859, AA883684, R39448, R36854 H98684, R07471, AA910762, AA083954, AA346369, R54092, H09074, N21975, D59844. H11525, AA971254, W77907, AA878973, AA715235, AA328928, W29097, AA860455. AA026096, AA026516, T26899, N71178, AA372290, AI038890, AA252245, W05501. AI039908, AA938631, AI016407, N70619, AA242923, AA973566, AA985290, AA995707, D81647, AA452630, N27253, AA682624, A252941, AA780678, AA280664, T09391. AA742364, AA907234, AA161236, AA155014, AA269966, AA089195, AA690806. AA466212. AA423476, AA591111, AA153891, AA967806, W65797, AA734052, W53738. AA175557, AA048480, AA027381, W66734, AA968020, AA230895, AA879531. AI019772, W18052, F20017, AA433457, AA550452, AI044911, AA786697.

SEO ID NO:545

AB011172, AB006626, AC002124, AC002410, AC002088, AD001502, U58776, M92914, Z21721, D25543, Z46598, AL023874, AB004317, L77566, U53786, AF004877, X51780. U31342, X54296, D85375, AC003033, M57425, AC004471, AF039241, AF039241 AA617796.

AA488201,

AA515666.

W51949, AA194873.

AA622411,

AA927444, AA927444 om70d12.s1 NCI CGAP GC4 Homo sapiens cDNA ... 731 0.0 W52500, W52500 zd13d02.rl Soares fetal heart NbHH19W Homo sap... 728 0.0 R64670, R64670 yi22c09.s1 Homo sapiens cDNA clone 139984 3'. AA057030, AA057030 zk78b03.rl Soares pregnant uterus NbHPU Ho... 698 0.0 AA496417, AA496417 zv37b03.rl Soares ovary tumor NbHOT Homo s... 686 0.0 AA116072, AA116072 zm79e11.rl Stratagene neuroepithelium (#93... 678 0.0 AA042995, AA042995 zk56b07.r1 Soares pregnant uterus NbHPU Ho... 668 0.0 H69274, H69274 EST00070 Homo sapiens cDNA clone HE6WCR117 5'. AA047371, AA047371 zk78b03.s1 Soares pregnant uterus NbHPU Ho... 658 0.0 R64669, R64669 vi22c09,r1 Homo sapiens cDNA clone 139984 5'. AA116073, AA116073 zm79e11.s1 Stratagene neuroepithelium (#93... 634 e-180 AA160894, AA160894, zo79c05.s1 Stratagene pancreas (#937208) H... 632, e-179 AA425945, AA425945 zv84a12.s1 Soares total fetus Nb2HF8 9w Ho... 595 e-168 AA436368, AA436368, zv32f05.s1 Soares ovary tumor NbHOT Homo s... 585, e-165 AA975130, AA975130 on06f01.s1 NCI CGAP Lei2 Homo sapiens cDNA... 579 e-163 AA885226, AA885226 am34e06.s1 Soares NFL T GBC S1 Homo sapien... 559 e-157 AA912472, AA912472 ol96e03.s1 NCI CGAP PNS1 Homo sapiens cDNA... 555 e-156 AA320935, AA320935 EST23388 Adipose tissue, white II Homo sap... 553 e-155

AA042872, AA042872 zk56b07.s1 Soares pregnant uterus NbHPU Ho... 543 e-152 T08932, T08932 EST06824 Homo sapiens cDNA clone HIBBM46 5' end. 537 e-150 AA488258, AA488258 ad08f07.r1 Soares NbHFB Homo sapiens cDNA ... 533 e-149 T19350, T19350 h03012t Testis 1 Homo sapiens cDNA clone h0301... 496 e-138 H87681, H87681 yw15e04.rl Homo sapiens cDNA clone 252318 5'. 490 e-136 H81522, H81522 yu61h08.rl Homo sapiens cDNA clone 230655 5'. 466 e-129 T49620, T49620 ya77g03.s1 Homo sapiens cDNA clone 67732 3'. 452 e-125 R14363, R14363 yf80d10.r1 Homo sapiens cDNA clone 28995 5' si... 446 e-123 AA211476, AA211476 zp75h11.s1 Stratagene HeLa cell s3 937216 ... 430 e-118 N46636, N46636 yy48a09.rl Homo sapiens cDNA clone 276760 5'. 424 e-116 Z17358, HSDHII065 H. sapiens partial cDNA sequence; clone HI... 416 e-114 R40737, R40737 yf80d10.s1 Homo sapiens cDNA clone 28995 3'. 400 e-109 AA410278, AA410278 zv32f05.rl Soares ovary tumor NbHOT Homo s... 383 e-104 AA496574, AA496574 zv37b03.s1 Soares ovary tumor NbHOT Homo s... 375 e-101 N34907, N34907 yy48a09.s1 Homo sapiens cDNA clone 276760 3'. 371 e-100 T49619, T49619 ya77g03.rl Homo sapiens cDNA clone 67732 5'. 355 1e-95 AA301480, AA301480 EST14551 Thymus III Homo sapiens cDNA 5' end 341 2e-91 R31593, R31593 yh76f03.s1 Homo sapiens cDNA clone 135677 3'. 317 2e-84 AA984591, AA984591 am89d10.s1 Stratagene schizo brain S11 Hom... 313 4e-83 AA338831, AA338831 EST43831 Fetal brain I Homo sapiens cDNA 5... 238 2e-60 T07305, T07305 EST05194 Homo sapiens cDNA clone HFBEG86. 230 4e-58 AA159942, AA159942 zo79c05.rl Stratagene pancreas (#937208) H... 204 3e-50 R57355, R57355 F2878 Fetal heart Homo sapiens cDNA clone F287... 196 6e-48 AA729237, AA729237 nx35c08.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 192 1e-46 AA877709, AA877709 nr09g11.s1 NCI_CGAP_Co10 Homo sapiens cDNA... 172 9e-41 AA969195, AA969195 op51c03.s1 Soares_NFL T_GBC_S1 Homo sapien... 107 4e-21 AA327432, AA327432 EST30768 Colon I Homo sapiens cDNA 5' end 80 1e-12 AA854147, AA854147 aj71f01.s1 Soares parathyroid tumor NbHPA ... 74 6e-11 AA983156, AA983156 oq51g09.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 66 2e-08 H09529, H09529 y195h10.s1 Homo sapiens cDNA clone 46129 3'. AA286791, AA286791 zs54h07.rl NCI_CGAP_GCB1 Homo sapiens cDNA... 66 2e-08 W04418, W04418 za43c06.rl Soares fetal liver spleen 1NFLS Hom... 58 4e-06 AA101045, AA101045 zm27e12.rl Stratagene pancreas (#937208) H... 56 1e-05 AA064706, AA064706 zm13f07.rl Stratagene pancreas (#937208) H... 42 0.22 AA810035, AA810035 odl1f12.s1 NCI_CGAP GCB1 Homo sapiens cDNA... 40 0.86 T41169, T41169 ya31g10.s3 Homo sapiens cDNA clone 62274 3' co... 40 0.86 AA070108, AA070108 zm69d06.s1 Stratagene neuroepithelium (#93... 40 0.86 AA706183, AA706183 ag93e01.s1 Stratagene hNT neuron (#937233)... 40 0.86 AA393069, AA393069 zt69e09.rl Soares testis NHT Homo sapiens ... 40 0.86 AA371600, AA371600 EST83650 Pituitary gland, subtracted (prol... 40 0.86 AA977820, AA977820 oq78a09.s1 NCI_CGAP_Kid6 Homo sapiens cDNA... 38 3.4 AA584760, AA584760 no04c06.s1 NCI CGAP Phel Homo sapiens cDNA... 38 3.4 AA584615, AA584615 no08g12.s1 NCI_CGAP_Phe1 Homo sapiens cDNA... 38 3.4 AA229827, AA229827 nc48c04.rl NCI_CGAP_Pr3 Homo sapiens cDNA ... 38 3.4 W21398, W21398 zb50a11.rl Soares fetal lung NbHL19W Homo sapi... 38 3.4

AA136933, AA136933 zn97f07.s1 Stratagene fetal retina 937202 ... 38 3.4

AA869501, AA869501 vq08g11.rl Barstead stromal cell line MPLR... 833 0.0 AA221749, AA221749 my28g01.rl Barstead mouse pooled organs MP... 789 0.0 AA271363, AA271363 va71d08.rl Soares mouse 3NME12 5 Mus muscu... 781 0.0 AA544727, AA544727 vk35d01.rl Soares mouse mammary gland NbMM... 773 0.0 W84968, W84968 mf42e02.rl Soares mouse embryo NbME13.5 14.5 M... 640 0.0 AA153324, AA153324 ms61e11.r1 Stratagene mouse embryonic carc... 617 e-175 AA673899, AA673899 vo86g07.rl Barstead mouse irradiated colon... 583 e-164 AA797488, AA797488 vw28a05.rl Soares mouse mammary gland NbMM... 519 e-145 W71831, W71831 me45b06.rl Soares mouse embryo NbME13.5 14.5 M... 472 e-131 AA213358, AA213358 mu74e04.rl Stratagene mouse embryonic carc... 444 e-123 W75918, W75918 me82f05.rl Soares mouse embryo NbME13.5 14.5 M... 444 e-123 AA038141, AA038141 mi81e05.rl Soares mouse p3NMF19.5 Mus musc... 359 3e-97 AA038288, AA038288 mi83b04.r1 Soares mouse p3NMF19.5 Mus musc... 323 1e-86 AA017742, AA017742 mh40c03.r1 Soares mouse placenta 4NbMP13.5... 297 8e-79 AA771297, AA771297 vt17g04.rl Barstead mouse myotubes MPLRB5 ... 297 8e-79 AA105228, AA105228 mp45b11.rl Barstead MPLRB1 Mus musculus cD... 295 3e-78 AA068340, AA068340 mm53f01.rl Stratagene mouse embryonic carc... 293 1e-77 AA612347, AA612347 vo05c08.r1 Stratagene mouse skin (#937313)... 281 5e-74 AA038300, AA038300 mi83d04.r1 Soares mouse p3NMF19.5 Mus musc... 270 2e-70 AA500952, AA500952 vg01h04.r1 Soares mouse NbMH Mus musculus ... 252 4e-65 W08368, W08368 mb41f07.r1 Soares mouse p3NMF19.5 Mus musculus... 212 4e-53 AA052280, AA052280 ma82e12.rl Soares mouse p3NMF19.5 Mus musc... 123 3e-26 AA064466, AA064466 ml49c05.rl Stratagene mouse testis (#93730... 107 2e-21 AA271566, AA271566 vb74b09.rl Soares mouse 3NME12 5 Mus muscu... 60 3e-07 C86222, C86222 Mus musculus fertilized egg cDNA 3'-end seque... 42 0.078 W83632, W83632 mf31a04.rl Soares mouse embryo NbME13.5 14.5 M... 42 0.078 AA423627, AA423627 ve80f01.rl Soares mouse mammary gland NbMM... 42 0.078 AA036586, AA036586 mi41h08.rl Soares mouse embryo NbME13.5 14... 42 0.078 AA207496, AA207496 mv78g02.rl GuayWoodford Beier mouse kidney... 42 0,078 AA120433, AA120433 mp82h11.rl Soares 2NbMT Mus musculus cDNA ... 42 0.078 W08185, W08185 mb42h02.rl Soares mouse p3NMF19.5 Mus musculus... 38 1.2 AA065563, AA065563 ml71b06.r1 Stratagene mouse kidney (#93731... 38 1.2 AA288756, AA288756 mr46h07.r1 Life Tech mouse embryo 15 5dpc ... 38 1.2 AA119334, AA119334 mp80e10.rl Soares 2NbMT Mus musculus cDNA ... 38 1.2 AA163051, AA163051 ms24a10.r1 Stratagene mouse skin (#937313)... 38 1.2 N28074, N28074 MDB1392R Mouse brain, Stratagene Mus musculus ... 38 1.2 AA288757, AA288757 mr46h08.rl Life Tech mouse embryo 15 5dpc ... 38 1.2 AA122857, AA122857 mg06a02.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.2 AA617519, AA617519 vj77d05.rl Knowles Solter mouse blastocyst... 38 1.2

WO 99/04265 PCT/US98/14679

276D

W89420, W89420 mf80b03.r1 Soares mouse embryo NbME13.5 14.5 M... 38 1.2 AI047837, AI047837 ud64c11.x1 Sugano mouse liver mlia Mus mus... 38 1.2 AA840310, AA840310 vw91a10.r1 Stratagene mouse skin (#937313)... 36 4.8 AA986428, AA986428 ue13b04.x1 Sugano mouse embryo mewa Mus mu... 36 4.8 W47677, W47677 mc89g07.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8 AA057996, AA057996 mj56c10.r1 Soares mouse embryo NbME13.5 14... 36 4.8 AA183858, AA183858 mo95h01.rl Stratagene mouse testis (#93730... 36 4.8 AA212232, AA212232 mu43e08.rl Soares 2NbMT Mus musculus cDNA ... 36 4.8 W41067, W41067 mc39a06.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.8 AA967594, AA967594 uh01d06.r1 Soares mouse hypothalamus NMHy ... 36 4.8 AA414093, AA414093 vc64c07.s1 Knowles Solter mouse 2 cell Mus... 36 4.8 AA123833, AA123833 mp93c03.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8 AA432920, AA432920 vd91b11.rl Soares mouse NbMH Mus musculus ... 36 4.8 AA874496, AA874496 vx03a08.rl Soares 2NbMT Mus musculus cDNA ... 36 4.8 AA000433, AA000433 me76e09.rl Soares mouse embryo NbME13.5 14... 36 4.8 AA023983, AA023983 mh94a07.rl Soares mouse placenta 4NbMP13.5... 36 4.8 AA013726, AA013726 mh12e09.rl Soares mouse placenta 4NbMP13.5... 36 4.8 AA274648, AA274648 vb08c01.rl Soares mouse NML Mus musculus c... 36 4.8 AA140347, AA140347 mq89g06.r1 Stratagene mouse heart (#937316... 36 4.8 AA499377, AA499377 vi89c07.rl Stratagene mouse heart (#937316... 36 4.8 C88747, C88747 Mus musculus early blastocyst cDNA, clone 01B... 36 4.8 AA726125, AA726125 vu88c06.r1 Stratagene mouse skin (#937313)... 36 4.8 AA760311, AA760311 vv71c12.rl Stratagene mouse skin (#937313)... 36 4.8 AA763007, AA763007 vw60b05.rl Soares mouse mammary gland NMLM... 36 4.8 AA929878, AA929878 vz44d03.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.8 W59064, W59064 md67e10.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8 AA103519, AA103519 mo24b12.rl Life Tech mouse embryo 13 5dpc ... 36 4.8 AA222310, AA222310 my14d08.rl Barstead mouse heart MPLRB3 Mus... 36 4.8 W83557, W83557 mf32d02.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8 AA168631, AA168631 ms33c05.rl Stratagene mouse skin (#937313)... 36 4.8 AA960143, AA960143 vw60b05.s1 Soares mouse mammary gland NMLM... 36 4.8 W34557, W34557 mc58a05.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.8 W98818, W98818 mf94e06.rl Soares mouse embryo NbME13.5 14.5 M... 36 4.8 AA008527, AA008527 mg85h01.r1 Soares mouse embryo NbME13.5 14... 36 4.8 AA008734, AA008734 mg86h03.rl Soares mouse embryo NbME13.5 14... 36 4.8 AA510568, AA510568 vg33a10.rl Soares mouse mammary gland NbMM... 36 4.8 AA672524, AA672524 vo59e11.rl Soares mouse mammary gland NbMM... 36 4.8 AA052773, AA052773 mf24h01.rl Soares mouse embryo NbME13.5 14... 36 4.8 AA096626, AA096626 mo09h06.r1 Life Tech mouse embryo 10 5dpc ... 36 4.8 AA124880, AA124880 mp73e06.rl Soares 2NbMT Mus musculus cDNA ... 36 4.8 AA198005, AA198005 mv12b09.r1 GuayWoodford Beier mouse kidney... 36 4.8 AA624213, AA624213 vm98h06.rl Knowles Solter mouse blastocyst... 36 4.8 AA521863, AA521863 vi08b01.rl Barstead mouse myotubes MPLRB5 ... 36 4.8 AA692113, AA692113 vt19d03.rl Barstead mouse myotubes MPLRB5 ... 36 4.8 W71551, W71551 me39e11.rl Soares mouse embryo NbME13.5 14.5 M... 36 4.8

WO 99/04265 PCT/US98/14679

DOMEN 40 IU ıΩ 050700 AA646501, AA646501 vn12g12.r1 Stratagene mouse heart (#937316... 36 4.8 AA607056, AA607056 vm95e05.rl Knowles Solter mouse blastocyst... 36 4.8 AA163340, AA163340 ms65b10.r1 Stratagene mouse embryonic carc... 36 4.8 AA110893, AA110893 mm02b04.rl Stratagene mouse kidney (#93731... 36 4.8

AI030290, AI030290 UI-R-C0-jb-d-01-0-UI.s1 UI-R-C0 Rattus nor... 293 1e-77 C71833, C71833 Rice cDNA, partial sequence (E0428 1A) 44 0.017 AA926551, AA926551 TENS1173 T. cruzi epimastigote normalized ... 42 0.069 AA875699, AA875699 TENU0170 T.cruzi epimastigote normalized c... 42 0.069 AA567661, AA567661 HL01595.5prime HL Drosophila melanogaster ... 40 0.27 C74504, C74504 Rice cDNA, partial sequence (E31753 1A) AA698333, AA698333 HL04291.5prime HL Drosophila melanogaster ... 38 1.1 AA441429, AA441429 LD16359.5prime LD Drosophila melanogaster ... 38 1.1 N68770, N68770 TgESTzy35b12.r1 TgRH Tachyzoite cDNA Toxoplasm... 38 1.1 AA246440, AA246440 LD05311.5prime LD Drosophila melanogaster ... 38 1.1 AA801776, AA801776 GM12975.5prime GM Drosophila melanogaster ... 38 1.1 N69148, N69148 TgESTzv33d10.r1 TgRH Tachyzoite cDNA Toxoplasm... 38 1.1 AA536484, AA536484 LD17114.5prime LD Drosophila melanogaster ... 38 1.1 AA392544, AA392544 LD11451.5prime LD Drosophila melanogaster ... 38 1.1 AA202696, AA202696 LD03182,5prime LD Drosophila melanogaster ... 38 1.1 AA392367, AA392367 LD11287.5prime LD Drosophila melanogaster ... 38 1.1 AA264629, AA264629 LD08245.5prime LD Drosophila melanogaster ... 38 1.1 AA735318, AA735318 LD21104.5prime LD Drosophila melanogaster ... 38 1.1 AA264558, AA264558 LD08333.5prime LD Drosophila melanogaster ... 38 1.1 AA536476, AA536476 LD17106.5prime LD Drosophila Embryo Drosop... 38 1.1 AA957774, AA957774 UI-R-E1-fv-f-04-0-UI.s1 UI-R-E1 Rattus nor... 38 1.1 AA567991, AA567991 HL02092.5prime HL Drosophila melanogaster ... 38 1.1 AA957876, AA957876 UI-R-E1-fv-f-04-0-UI.s2 UI-R-E1 Rattus nor... 38 1.1 AA892488, AA892488 EST196291 Normalized rat kidney, Bento Soa... 38 1.1 AA699001, AA699001 HL06668.5prime HL Drosophila melanogaster ... 36 4.3 C19706, C19706 Rice cDNA, partial sequence (E10809 1A) 36 4.3 D41773, RICS4574A Rice cDNA, partial sequence (S4574 2A). 36 4.3 C40680, C40680 C.elegans cDNA clone yk247c4: 5' end, single... 36 4.3 AA698625, AA698625 HL05354.5prime HL Drosophila melanogaster ... 36 4.3 C82819, C82819 Oryctolagus cuniculus corneal endothelial cDN... 36 4.3 D46016, RICS10393A Rice cDNA, partial sequence (S10393 3A). 36 4.3 AA536314, AA536314 LD16858,5prime LD Drosophila melanogaster ... 36 4.3 AA801012, AA801012 EST190509 Normalized rat muscle, Bento Soa... 36 4.3 D46541, RICS11289A Rice cDNA, partial sequence (S11289 1A). 36 4.3 D47315, RICS12612A Rice cDNA, partial sequence (S12612 1A). 36 4.3 AA735857, AA735857 GM09977.5prime GM Drosophila melanogaster ... 36 4.3 AA753921, AA753921 97BS0370 Rice Immature Seed Lambda ZAPII c... 36 4.3 D47243, RICS12505A Rice cDNA, partial sequence (S12505 1A). 36 4.3 AA978395, AA978395 LD28411.5prime LD Drosophila melanogaster ... 36 4.3

276F

D15134, RICC0136A Rice cDNA, partial sequence (C0136A).	36 4.3
D46483, RICS11185A Rice cDNA, partial sequence (S11185 1A).	36 4.3
D46618, RICS11395A Rice cDNA, partial sequence (S11395 1A).	36 4.3
D46659, RICS11457A Rice cDNA, partial sequence (S11457 1A).	36 4.3
D46719, RICS11572A Rice cDNA, partial sequence (S11572 1A).	36 4.3
D48579, RICS14880A Rice cDNA, partial sequence (S14880_2A).	36 4.3
AA802334, AA802334 GM04219.5prime GM Drosophila melanogaster 36 4.3	
D46066, RICS10470A Rice cDNA, partial sequence (S10470_1A).	36 4.3
D47037, RICS12104A Rice cDNA, partial sequence (S12104 1A).	36 4.3
D46874, RICS11807A Rice cDNA, partial sequence (S11807_2A).	36 4.3
D47174, RICS12340A Rice cDNA, partial sequence (S12340_2A).	36 4.3
T04578, T04578 625 Lambda-PRL2 Arabidopsis thaliana cDNA clo	n 36 4.3
C83675, C83675 Oryctolagus cuniculus corneal endothelial cDN	36 4.3
D47950, RICS13762A Rice cDNA, partial sequence (S13762_1A).	36 4.3
R90044, R90044 16399 Lambda-PRL2 Arabidopsis thaliana cDNA	cl 36 4.3
D46994, RICS12013A Rice cDNA, partial sequence (S12013_2A).	36 4.3
AA440820, AA440820 LD15713.5prime LD Drosophila melanogaster 36 4.3	
	36 4.3
Z84004, SSZ84004 S.scrofa mRNA; expressed sequence tag (5';	36 4.3
D47519, RICS13070A Rice cDNA, partial sequence (S13070_1A).	36 4.3
C19735, C19735 Rice cDNA, partial sequence (E10858_1A)	36 4.3
D47231, RICS12462A Rice cDNA, partial sequence (S12462_1A).	36 4.3
D47147, RICS12293A Rice cDNA, partial sequence (S12293_1A).	36 4.3
AA950198, AA950198 LD30147.5prime LD Drosophila melanogas	ter 36 4.3
Z47624, ATTS4480 A. thaliana transcribed sequence; clone TAI	36 4.3
D45955, RICS10259A Rice cDNA, partial sequence (S10259_1A).	36 4.3
D47137, RICS12280A Rice cDNA, partial sequence (S12280_1A).	36 4.3
D69927, CELK093H2F C.elegans cDNA clone yk93h2: 5' end, sin.	
AA392275 AA392275 LD11117 Sprime LD Drosophila melanogas	ter 36.43

SEQ ID NO:546

D87455, D87455 Human mRNA for KIAA0266 gene, complete cds
Z99129, HS425C14 Human DNA sequence from clone 425C14 on chr... 42 0.20
D90900, D90900 Synechocystis sp. PCC6803 complete genome, 2/... 40 0.80
Z74281, SCYDL233W S.cerevisiae chromosome IV reading frame O... 38 3.1
AL021528, HS394P21 Homo sapiens DNA sequence from PAC 394P21... 38 3.1
Z49155, HSL83D3 Human DNA from cosmid L83d3, Huntington's Di... 38 3.1
U33761, HSU33761 Human cyclin A/CDK2-associated p45 (Skp2) mR... 38 3.1
Z78620, SPAC2048 S.pombe chromosome I cosmid c20G4
38 3.1

DOMEDOS SESTES

Y09438, SPHUSPLUS S.pombe hus1+ gene 38 3.1 D29951, MUSKIF Mouse mRNA for kinesin family protein KIF1a, ... 38 3.1

HUMAN ESTs

AA151187, AA151187 zo03c11.r1 Stratagene colon (#937204) Homo... 694 0.0
AA824593, AA824593 oc83d10.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 670 0.0
AA954862, AA954862 op20c03.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 581 e-164
T16360, T16360 NIB1193 Normalized infant brain, Bento Soares ... 517 e-145
R54592, R54592 yg81h10.s1 Homo sapiens cDNA clone 40102 3'. 511 e-143
AA373594, AA373594 EST85631 HSC172 cells I Homo sapiens cDNA ... 507 c-142
AA100660, AA100660 zl90a05.r1 Stratagene colon (#937204) Homo... 383 e-104
R42009, R42009 yg05b04.s1 Homo sapiens cDNA clone 31336 3'. 379 e-103
AA249614, AA249614 k3041.seq.F Human fetal heart, Lambda ZAP ... 252 5e-65
AA360633, AA360633 EST69800 T-cell lymphoma Homo sapiens cDNA... 182 4e-44
AA053498, AA053498 zl70b11.r1 Stratagene colon (#937204) Homo... 38 1.5
AA992442, AA992442 or85h03.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 38 1.5

AA065677, AA065677 mm43c03.r1 Stratagene mouse melanoma (#937... 297 4e-79 AA529728, AA529728 vi38g12.r1 Beddington mouse embryonic regi... 42 0.035 W91608, W91608 MTA.D10.092.A MTA adult mouse thymus library M... 42 0.035 AA177186, AA177186 mt51a11.r1 Stratagene mouse embryonic carc... 42 0.035 AA048008, AA048008 mj26h10.r1 Soares mouse embryon NbME13.5 14... 36 2.2 AA6367535, AA637535 vu10c02.r1 Barstead mouse myotubes MPLRB5 ... 36 2.2 AA726355, AA726355 vu90c09.r1 Stratagene mouse skin (#937313)... 36 2.2 AA060014, AA060014 mi34d07.r1 Stratagene mouse testis (#93730... 36 2.2 AA8764250, AA764250 vv49c09.r1 Stratagene mouse 2 cell Mus... 36 2.2 AA764250, AA764250 vv49c09.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.2

H34350, H34350 EST111226 Rat PC-12 cells, NGF-treated (9 days... 36 1.9 C40718, C40718 C.elegans cDNA clone yk247f9 : 5' end, single... 36 1.9 AA817925, AA817925 UI-R-A0-af-g-04-0-UI.s1 UI-R-A0 Rattus nor... 36 1.9 AA955650, AA955650 UI-R-EI-fe-e-10-0-UI.s1 UI-R-EI Rattus nor... 36 1.9

SEQ ID NO:547

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.35
U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.35
AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.35
U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.4
Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.4
AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 1.4
U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA.... 40 1.4

HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0 AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143 AA551799, AA551799 nk04a11.s1 NCI CGAP Co2 Homo sapiens cDNA ... 363 4e-98 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 3e-95 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 2e-84 AA121198, AA121198 zl88g08.rl Stratagene colon (#937204) Homo... 317 2e-84 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.17 AA888147, AA888147 04h11.s1 NCI_CGAP Co10 Homo sapiens cDNA... 40 0.67 AA946650, AA946650 oq38h09.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 40 0.67 AA435587, AA435587 zt85d07.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA806381, AA806381 oc22g05.s1 NCI_CGAP GCB1 Homo sapiens cDNA... 40 0.67 AA577174, AA577174 nm86e11.s1 NCI CGAP Co9 Homo sapiens cDNA ... 40 0.67 AA215903, AA215903 hp0042.seq.F Fetal heart, Lambda ZAP Expre... 40 0.67 AA262229, AA262229 zs25b12.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 40 0.67 AA969632, AA969632 op38h05.s1 Soares_NFL_T_GBC_S1 Homo sapien... 40 0.67 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. 40 0.67 AI005324, AI005324 ou13h07.x1 Soares NFL T GBC_S1 Homo sapien... 40 0.67 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.67 AA860208, AA860208 ak48c10.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA814296, AA814296 nz07d08.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 40 0.67 AA873216, AA873216 oh70f04.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 40 0.67 AA403143, AA403143 zv66d01.rl Soares total fetus Nb2HF8 9w Ho... 40 0.67 W45005, W45005 zc05c12.rl Soares parathyroid tumor NbHPA Homo... 40 0.67 W32428, W32428 zc05c12.s1 Soares parathyroid tumor NbHPA Homo... 40 0.67 AA974988, AA974988 on59b06.s1 Soares_NFL T GBC S1 Homo sapien... 40 0.67 AA725024, AA725024 ah97h10.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67 AA757360, AA757360 ah98a01.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67 N72025, N72025 yz96g02.s1 Homo sapiens cDNA clone 290930 3'. 40 0.67 R02514, R02514 ve70b08.rl Homo sapiens cDNA clone 123063 5'. 40 0.67 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.67 AA877455, AA877455 ob33g01.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.67 AA041240, AA041240 zf07g05.rl Soares fetal heart NbHH19W Homo... 40 0.67

AA903406, AA903406 ok62c11.s1 NCI CGAP GC4 Homo sapiens cDNA ... 40 0.67 AA461270, AA461270 zx63b07.rl Soares total fetus Nb2HF8 9w Ho... 40 0.67 AA927863, AA927863 om18a08.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67 AA587486, AA587486 nn84e09.s1 NCI_CGAP_Br2 Homo sapiens cDNA ... 40 0.67 W47466, W47466 zc34h02.r1 Soares senescent fibroblasts NbHSF ... 40 0.67 AA022495, AA022495 ze70e04.s1 Soares fetal heart NbHH19W Homo... 40 0.67 AA460961, AA460961 zx63b07.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67 AA393904, AA393904 zt85e06.rl Soares testis NHT Homo sapiens ... 40 0.67 AA872272, AA872272 oh72a11.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.67 W47341, W47341 zc34h02.s1 Soares senescent fibroblasts NbHSF ... 40 0.67 N72024, N72024 yz96g01.s1 Homo sapiens cDNA clone 290928 3'. 40 0.67 N35076, N35076 yy19b08.s1 Homo sapiens cDNA clone 271671 3'. 40 0.67 AA813115, AA813115 aj44d06.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA826741, AA826741 85f12.s1 NCI_CGAP_Pr24 Homo sapiens cDNA... 40 0.67 AA160827, AA160827 zo62e01.s1 Stratagene pancreas (#937208) H... 40 0.67 AI040354, AI040354 oy33d12.x1 Soares parathyroid tumor NbHPA ... 40 0.67 AA573297, AA573297 nk98d09.s1 NCI CGAP Co3 Homo sapiens cDNA ... 40 0.67 AA416559, AA416559 zu18c03.rl Soares NhHMPu S1 Homo sapiens c... 40 0.67 AA401079, AA401079 zv66d01.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67 AI005204, AI005204 ou60c12.x1 NCI CGAP Br2 Homo sapiens cDNA ... 40 0.67 N21678, N21678 yx63g01.s1 Soares melanocyte 2NbHM Homo sapien... 40 0.67 AA824270, AA824270 aj29f01.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA804907, AA804907 oa89a01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 40 0.67 AA759038, AA759038 ah75h11.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA417295, AA417295 zu18c03.s1 Soares NhHMPu S1 Homo sapiens c... 40 0.67 AA628544, AA628544 af27h12.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.67 AA618498, AA618498 np30a11.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 40 0.67 AA503727, AA503727 ne49g02.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 40 0.67 AA514777, AA514777 ni24b01.s1 NCI_CGAP_Co4 Homo sapiens cDNA ... 40 0.67 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.67 AA770473, AA770473 ah89h06.s1 Soares NFL T GBC S1 Homo sapien... 40 0.67 AA759377, AA759377 ah54a10.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA629243, AA629243 zu77e03.s1 Soares testis NHT Homo sapiens ... 40 0.67 AA262162, AA262162 zs25b12.rl NCI CGAP GCB1 Homo sapiens cDNA... 40 0.67 AA161105, AA161105 zo58c05.s1 Stratagene pancreas (#937208) H... 38 2.6 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.6 AA948291, AA948291 oq34d02.s1 NCI CGAP GC4 Homo sapiens cDNA ... 38 2.6 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.6 N98472, N98472 yy65a04.rl Homo sapiens cDNA clone 278382 5'. AA416815, AA416815 zu08c01.r1 Soares testis NHT Homo sapiens ... 38 2.6 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.6 H30248, H30248 yp42a01.s1 Homo sapiens cDNA clone 190056 3'. 38 2.6 R82551, R82551 yj19d06.rl Homo sapiens cDNA clone 149195 5'. 38 2.6

AA616807, AA616807 vn68c05.rl Barstead mouse irradiated colon... 180 1e-43 AA014223, AA014223 mh20a03.rl Soares mouse placenta 4NbMP13.5... 40 0.24 AA014768, AA014768 mi66h04.rl Soares mouse embryo NbME13.5 14... 40 0.24 AA185487, AA185487 mt62c07.rl Soares 2NbMT Mus musculus cDNA ... 40 0.24 AA103139, AA103139 mo17f05.r1 Life Tech mouse embryo 13 5dpc ... 40 0.24 AI048515, AI048515 uh61e08.rl Soares mouse embryonic stem cel... 40 0.24 AA711859, AA711859 vu59c10.rl Soares mouse mammary gland NbMM... 40 0.24 AA009071, AA009071 mg87b11.r1 Soares mouse embryo NbME13.5 14... 40 0.24 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.24 AA497479, AA497479 vh29b12.r1 Soares mouse mammary gland NbMM... 40 0.24 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.24 AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 40 0.24 AA881111, AA881111 vz06e09.rl Soares mouse mammary gland NbMM... 40 0.24 AA007762, AA007762 mg76b03.r1 Soares mouse embryo NbME13.5 14... 40 0.24 W83172, W83172 mf09a06.rl Soares mouse p3NMF19.5 Mus musculus... 40 0.24 AA106439, AA106439 ml59a08.rl Stratagene mouse testis (#93730... 40 0.24 AA000268, AA000268 mg32e09.rl Soares mouse embryo NbME13.5 14... 40 0.24 AI047077, AI047077 uh61g06.rl Soares mouse embryonic stem cel... 40 0.24 AA543280, AA543280 vj80h05.rl Soares mouse mammary gland NbMM... 40 0.24 AA106301, AA106301 ml81a09.r1 Stratagene mouse kidney (#93731... 40 0.24 AA467482, AA467482 ve01a10.r1 Soares mouse NbMH Mus musculus ... 40 0.24 AA797372, AA797372 vw27b08.rl Soares mouse mammary gland NbMM... 40 0.24 W77724, W77724 me84h06.rl Soares mouse embryo NbME13.5 14.5 M... 40 0.24 AA049011, AA049011 mj48c09.rl Soares mouse embryo NbME13.5 14... 40 0.24 AA763419, AA763419 vw54a12.rl Soares mouse mammary gland NMLM... 40 0.24 AA138067, AA138067 mq37c11.r1 Barstead MPLRB1 Mus musculus cD... 40 0.24 AA475425, AA475425 vh20g09.rl Soares mouse mammary gland NbMM... 40 0.24 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.24 AA016868, AA016868 mh36e12.r1 Soares mouse placenta 4NbMP13.5... 40 0.24 AA230758, AA230758 my32g10.rl Barstead mouse pooled organs MP... 40 0.24 AA833479, AA833479 uc91c03.rl Soares mouse uterus NMPu Mus mu... 40 0.24 W61547, W61547 md57a02.rl Soares mouse embryo NbME13.5 14.5 M... 40 0.24 AA033481, AA033481 mi42b07.rl Soares mouse embryo NbME13.5 14... 40 0.24 AA068686, AA068686 mm59a03.rl Stratagene mouse embryonic carc... 38 0.94 AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 3.7 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 3.7 AA921560, AA921560 vy52c06.rl Stratagene mouse lung 937302 Mu... 36 3.7 W87202, W87202 mf55g08.rl Soares mouse embryo NbME13.5 14.5 M... 36 3.7 AA542324, AA542324 vk53e07.rl Stratagene mouse Tcell 937311 M... 36 3.7 AA967316, AA967316 vj47a03.rl Stratagene mouse skin (#937313)... 36 3.7 W62989, W62989 md88h12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.7 AA530735, AA530735 vj32g11.rl Stratagene mouse diaphragm (#93... 36 3.7 AA218431, AA218431 my07e05.rl Barstead mouse lung MPLRB2 Mus ... 36 3.7 AA591243, AA591243 vm18c04.rl Knowles Solter mouse blastocyst... 36 3.7

 AI047609, AI047609 uh63g07.r1 Soares mouse embryonic stem cel... 36 3.7

AA692425, AA692425 vt59b05.r1 Barstead mouse irradiated colon... 36 3.7

AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 3.7

AA856298, AA856298 vw99b01.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.7

AA230661, AA230661 mw15f08.r1 Soares mouse 3NME12 5 Mus musculus... 36 3.7

AA230661, AA230661 mw15f08.r1 Soares mouse 3NME12 5 Mus musculus cDNA ... 36 3.7

AA311190, AA111190 mp66b11.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.7

AA3840087, AA840087 uc99h12.r1 Soares mouse uterus NMPu Mus mu... 36 3.7

AA39210, AA0849210 mo05d10.r1 Stratagene mouse lung 937302 Mu... 36 3.7

AA393845, AA793845 vr35e12.r1 Soares mouse mammary gland NbMM... 36 3.7

AA393845, AA793845 vr35e12.r1 Barstead mouse macrophage (#9... 36 3.7

AA39310, AA2319210 mx89e02.r1 Soares mouse MML Mus musculus c... 36 3.7

AA311873, AA711873 vu28e06.r1 Barstead mouse myotubes MPLRB5 ... 36 3.7

AA645119, AA645119 vs72d03.r1 Stratagene mouse skin (#937313)... 36 3.7

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.053 C83463, C83463 Oryctolagus cuniculus corneal endothelial cDN... 38 0.84 AA859448, AA859448 UI-R-A0-bf-b-01-0-UI.s1 UI-R-A0 Rattus nor... 38 0.84 AA874930, AA874930 UI-R-E0-ci-b-05-0-UI.s1 UI-R-E0 Rattus nor... 38 0.84 C82607, C82607 Oryctolagus cuniculus corneal endothelial cDN... 38 0.84 AI009631, AI009631 EST204082 Normalized rat lung, Bento Soare... 38 0.84 AA801145, AA801145 EST190642 Normalized rat ovary, Bento Soar... AI012760, AI012760 EST207211 Normalized rat placenta, Bento S... 38 0.84 AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.84 AA801144, AA801144 EST190641 Normalized rat ovary, Bento Soar... 38 0 84 AA660819, AA660819 00713 MtRHE Medicago truncatula cDNA 5' AA859865, AA859865 UI-R-E0-cc-b-04-0-UI.s1 UI-R-E0 Rattus nor... 38 0.84 AI009035, AI009035 EST203486 Normalized rat embryo, Bento Soa... 38 0.84 AA859542, AA859542 UI-R-E0-br-d-03-0-UI.s1 UI-R-E0 Rattus nor... 38 0.84 T00613, T00613 wEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.84 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.3 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.3 D45997, RICS10346A Rice cDNA, partial sequence (S10346_1A). 36 3.3 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.3 C68472, C68472 C.elegans cDNA clone yk305a12: 5' end, singl... 36 3.3 AA785775, AA785775 h4b05a1.fl Aspergillus nidulans 24hr asexu... 36 3.3 D46069, RICS10475A Rice cDNA, partial sequence (S10475 1A). AA660859, AA660859 00754 MtRHE Medicago truncatula cDNA 5' si... 36 3.3 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 3.3 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 3.3 AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.3 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.3 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 3.3

SEQ ID NO:548

U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.34
AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.34
U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.34
Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.3
AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 1.3
U88662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.3
U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.3

HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0 AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143 AA551799, AA551799 nk04a11.s1 NCI_CGAP_Co2 Homo sapiens cDNA ... 363 3e-98 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90 AA121198, AA121198 zl88g08.rl Stratagene colon (#937204) Homo... 317 2e-84 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 2e-84 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.16 AA041240, AA041240 zf07g05.r1 Soares fetal heart NbHH19W Homo... 40 0.64 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.64 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.64 AA573297, AA573297 nk98d09.s1 NCI_CGAP Co3 Homo sapiens cDNA ... 40 0.64 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. AA888147, AA888147 04h11.s1 NCI_CGAP Co10 Homo sapiens cDNA... 40 0.64 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.64 AA877455, AA877455 ob33g01.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 40 0.64 R02514, R02514 ye70b08.rl Homo sapiens cDNA clone 123063 5'. 40 0.64 AA514777, AA514777 ni24b01.s1 NCI_CGAP_Co4 Homo sapiens cDNA ... 40 0.64 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.5 N98472, N98472 yy65a04.rl Homo sapiens cDNA clone 278382 5'. AA416815, AA416815 zu08c01.rl Soares testis NHT Homo sapiens ... 38 2.5 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.5 AA948291, AA948291 oq34d02.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 38 2.5 AA852281, AA852281 NHTBCae11g05rl Normal Human Trabecular Bon... 38 2.5

AA616807, AA616807 vn68c05.rl Barstead mouse irradiated colon... 180 1e-43 AA469884, AA469884 vf71g10.r1 Barstead mouse pooled organs MP... 40 0.23 AA230758, AA230758 mv32g10.r1 Barstead mouse pooled organs MP... 40 0.23 AA038869, AA038869 mi95b10.rl Soares mouse p3NMF19.5 Mus musc... 40 0.23 AA763419, AA763419 vw54a12.rl Soares mouse mammary gland NMLM... 40 0.23 AA185487, AA185487 mt62c07.r1 Soares 2NbMT Mus musculus cDNA ... 40 0.23 AA106439, AA106439 ml59a08.rl Stratagene mouse testis (#93730... 40 0.23 AA276740, AA276740 vc42a12.rl Soares mouse 3NbMS Mus musculus... 40 0.23 AA068686, AA068686 mm59a03.rl Stratagene mouse embryonic carc... 38 0.91 AA711873, AA711873 vu28e06.rl Barstead mouse myotubes MPLRB5 ... 36 3.6 AA856298, AA856298 vw99b01.rl Soares 2NbMT Mus musculus cDNA ... 36 3.6 W20935, W20935 mb96c07.rl Soares mouse p3NMF19.5 Mus musculus... 36 3.6 AA966976, AA966976 ua38fl l.rl Soares mouse mammary gland NbMM... 36 3.6 AA921560, AA921560 vy52c06.rl Stratagene mouse lung 937302 Mu... 36 3.6 AA692425, AA692425 vt59b05.rl Barstead mouse irradiated colon... 36 3.6 W87202, W87202 mf55g08.rl Soares mouse embryo NbME13.5 14.5 M... 36 3.6 AA840087, AA840087 uc99h12.rl Soares mouse uterus NMPu Mus mu... 36 3,6 AA111190, AA111190 mp66b11.r1 Soares 2NbMT Mus musculus cDNA ... 36 3.6 AA239210, AA239210 mx89e02,rl Soares mouse NML Mus musculus c... 36 3.6 AA793845, AA793845 vr35e12.rl Barstead mouse myotubes MPLRB5 ... 36 3.6 AA645119, AA645119 vs72d03.rl Stratagene mouse skin (#937313)... 36 3.6 AA230661, AA230661 mw15f08.r1 Soares mouse 3NME12 5 Mus muscu... 36 3.6 AA824205, AA824205 vv20g08.r1 Stratagene mouse macrophage (#9... 36 3.6 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36, 3.6 AA967316, AA967316 vi47a03.r1 Stratagene mouse skin (#937313)... 36 3.6 AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 3.6 AI035925, AI035925 ub49e05.r1 Soares mouse mammary gland NbMM... 36 3.6 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 3.6 AA218431, AA218431 my07e05.rl Barstead mouse lung MPLRB2 Mus ... 36 3.6 W62989, W62989 md88h12.rl Soares mouse embryo NbME13.5 14.5 M... 36 3.6 AA089210, AA089210 mo05d10.rl Stratagene mouse lung 937302 Mu... 36 3.6 AA796056, AA796056 vo65d01.rl Soares mouse mammary gland NbMM... 36 3.6 AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 3.6

AA957268, AA957268 UI-R-EI-fiq-e-06-0-UI.sI UI-R-EI Rattus nor... 42 0.052 T00613, T00613 WEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.81 AA660819, AA660819 00713 MIRHE Medicago truncatula cDNA 5' 38 0.81 AA956139, AA956139 UI-R-EI-fi-h-08-0-UI.sI UI-R-EI Rattus nor... 36 3.2 AA952654, AA942765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.2 AA955567, AA955567 UI-R-EI-fi-a-a-08-0-UI.sI UI-R-EI Rattus nor... 36 3.2 X33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 3.2 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.2 AA660859, AA660859 00754 MIRHE Medicago truncatula cDNA 5' si... 36 3.2

D45997, RICS10346A Rice cDNA, partial sequence (S10346_1A). 36 3.2 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 3.2 C68472, C68472 C.elegans cDNA clone yk305a12 : 5' end, singl... 36 3.2 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.2 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.2 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 3.2

SEQ ID NO:549

S81843, S81843 beta-adrenergic receptor kinase 1 [Syrian hams... 38 4.3 X61157, HSBARK H.sapiens mRNA for beta-adrenergic receptor k... 38 4.3 U08438, HSNBARKS4 Human beta-adrenergic receptor kinase (ADRB... 38 4.3 U39674. CELCO6E2 Caenorhabditis elegans cosmid C06E2. 38 4.3

HUMAN ESTs

W29097, W29097 56d11 Human retina cDNA randomly primed sublib... 1045 0.0 AA886109, AA886109 ny44f05.s1 NCI CGAP Pr12 Homo sapiens cDNA... 656 0.0 AA829894, AA829894 oc51e12.sl NCI CGAP Lu5 Homo sapiens cDNA ... 650 0.0 AA879456, AA879456 oj91g03.s1 Soares NFL T GBC S1 Homo sapien... 650 0.0 AA029201, AA029201 zk12f08.s1 Soares pregnant uterus NbHPU Ho... 650 0.0 AA102109, AA102109 zk87g11.s1 Soares pregnant uterus NbHPU Ho... 650 0.0 AA843811, AA843811 ak09c08.s1 Soares parathyroid tumor NbHPA ... 650 0.0 W72147, W72147 zd70f08.s1 Soares fetal heart NbHH19W Homo sap... 650 0.0 N51485, N51485 vz04e06.s1 Homo sapiens cDNA clone 282082 3'. AI033069, AI033069 ow93f02.s1 Soares fetal liver spleen 1NFLS... 642 0.0 AA161465, AA161465 zo73a06.s1 Stratagene pancreas (#937208) H... 638 0.0 N51277, N51277 vz14d07.s1 Homo sapiens cDNA clone 283021 3'. 636 e-180 N64528, N64528 yz91e06.s1 Homo sapiens cDNA clone 290434 3'. 636 e-180 H99906, H99906 yx32h10.s1 Homo sapiens cDNA clone 263491 3'. 636 e-180 AA812519, AA812519 ai79b03.s1 Soares testis NHT Homo sapiens ... 636 e-180 R71679, R71679 vi85e08.s1 Homo sapiens cDNA clone 155558 3'. 628 e-178 AA744290, AA744290 nv51d02.s1 NCI CGAP Pr18 Homo sapiens cDNA... 626 e-177 AI038590, AI038590 ox34e03.s1 Soares total fetus Nb2HF8 9w Ho... 624 e-177 AA099913, AA099913 zk87g11.rl Soares pregnant uterus NbHPU Ho... 624 e-177 AA083859, AA083859 zn16d06.s1 Stratagene neuroepithelium NT2R... 622 e-176 AA883684, AA883684 al58a05.s1 Soares NFL T GBC S1 Homo sapien... 613 e-173 R39448, R39448 vc95d03.s1 Homo sapiens cDNA clone 23921 3'. 593 e-167 R36854, R36854 yf52c07.s1 Homo sapiens cDNA clone 25899 3'. 591 e-167 H98684, H98684 yx17g01.s1 Homo sapiens cDNA clone 262032 3'. 585 e-165 R07471, R07471 ve97a06.s1 Homo sapiens cDNA clone 125650 3'. 581 e-164 AA910762, AA910762 ol25h06.s1 Soares NFL T GBC S1 Homo sapien... 559 e-157 AA083954, AA083954 zn17d06.s1 Stratagene neuroepithelium NT2R... 555 e-156 AA346369, AA346369 EST52776 Fetal heart II Homo sapiens cDNA ... 545 e-153 R54092, R54092 yg98d07.s1 Homo sapiens cDNA clone 41818 3'. 539 e-151 H09074, H09074 v197a06.s1 Homo sapiens cDNA clone 46164 3'. 535 e-150 N21975, N21975 yw30c10.s1 Homo sapiens cDNA clone 253746 3'. 533 e-149 D59844, HUM070E11A Human fetal brain cDNA 3'-end GEN-070E11. 466 e-129 H11525, H11525 ym15h07.s1 Homo sapiens cDNA clone 48232 3'. 442 e-122 AA971254, AA971254 op73c08.sl Soares NFL T GBC S1 Homo sapien... 442 e-122 W77907, W77907 zd70f08.rl Soares fetal heart NbHH19W Homo sap... 428 e-118 AA878973, AA878973 oj26d11.s1 NCI_CGAP_Kid3 Homo sapiens cDNA... 389 e-106 AA715235, AA715235 nv10g01.s1 NCI CGAP Pr22 Homo sapiens cDNA... 357 2e-96

276P

AA328928, AA328928 EST32475 Embryo, 12 week I Homo sapiens cD... 355 7e-96 AA860455, AA860455 aj80f02.s1 Soares parathyroid tumor NbHPA ... 283 2e-74 AA026096, AA026096 ze97a04.r1 Soares fetal heart NbHH19W Homo... 268 1e-69 AA026516, AA026516 ze97a04.s1 Soares fetal heart NbHH19W Homo... 172 6e-41 T26899, T26899 ESTDIR509 Homo sapiens cDNA clone CDDIR509 3'. 170 2e-40 N71178, N71178 yw30c10.rl Homo sapiens cDNA clone 253746 5'. 165 le-38 AA372290, AA372290 EST84170 Raji cells, cyclohexamide treated... 98 3e-18 AI038890, AI038890 ox84g12.x1 Soares senescent fibroblasts Nb... 40 0.53 D81647, HUM180D08B Human fetal brain cDNA 5'-end GEN-180D08. 38 2.1 AA452630, AA452630 zx33f08.rl Soares total fetus Nb2HF8 9w Ho... 38 2.1 AA682624, AA682624 zi19g01.sl Soares fetal liver spleen 1NFLS... 38 2.1 AA742364, AA742364 ny89c12.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 38 2.1 AA907234, AA907234 ol03h08.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 38 2.1 T09391, T09391 EST07284 Homo sapiens cDNA clone HIBBT71 5' en... 38 2.1 AA161236, AA161236 zo59h07.s1 Stratagene pancreas (#937208) H... 38 2.1 AA252941, AA252941 zr50g09.r1 Soares NhHMPu S1 Homo sapiens c... 38 2.1 AA252245, AA252245 zr64g07.s1 Soares NhHMPu S1 Homo sapiens c... 38 2.1 AA780678, AA780678 ac70h01.s1 Stratagene fetal retina 937202 ... 38 2.1 W05501, W05501 za84a12.rl Soares fetal lung NbHL19W Homo sapi... 38 2.1 AI039908, AI039908 ox25f07.x1 Soares total fetus Nb2HF8 9w Ho... 38 2.1 AA280664, AA280664 zs99f09.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 38 2.1 AA973566, AA973566 oo46f09.s1 NCI_CGAP Lu5 Homo sapiens cDNA ... 38 2.1 N27253, N27253 yx17g01.rl Homo sapiens cDNA clone 262032 5'. AA995707, AA995707 os29c09.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 38 2.1 AI016407, AI016407 ot72e09.s1 Soares_total_fetus_Nb2HF8_9w Ho... 38 2.1 N70619, N70619 za84a12.s1 Homo sapiens cDNA clone 299230 3'. AA242923, AA242923 zr64g07.r1 Soares NhHMPu S1 Homo sapiens c... 38 2.1 AA938631, AA938631 0096f07.sl NCI_CGAP_Kid5 Homo sapiens cDNA... 38 2.1 AA985290, AA985290 am74g03.s1 Stratagene schizo brain S11 Hom... 38 2.1

AA690806, AA690806 vt25h10.r1 Barstead mouse myotubes MPLRB5 ... 377 e-103
AA155014, AA155014 mr99h05.r1 Stratagene mouse embryonic carc... 180 8e-44
AA269966, AA269966 va57d06.r1 Soares mouse 3NME12 5 Mus muscu... 172 2e-41
AA089195, AA089195 mo05h11.r1 Stratagene mouse lung 937302 Mu... 163 2e-38
AA466212, AA466212 vg86g02.r1 Barstead mouse pooled organs MP... 68 8e-10
AA423476, AA423476 ve76d07.r1 Soares mouse mammary gland NbMM... 60 2e-07
AA597213, AA597213 vo28a05.r1 Barstead mouse irradiated colon... 40 0.19
AA396266, AA396266 vb45c01.r1 Soares mouse iymph node NbMLN M... 40 0.19
AA967806, AA967806 uh05d06.r1 Soares mouse hypothalamus NMHy ... 38 0.75
AA591111, AA591111 vm12c06.r1 Knowles Solter mouse blastocyst... 38 0.75
AA53891, AA153891 mq56e05.r1 Soares mouse embryo NbME13.5 14.5 M... 38 0.75

DOMESSES DESTRO

AI019772, AI019772 ua90h02.rl Soares mouse mammary gland NbMM... 36 3.0 AA472253, AA472253 vh10g05.rl Soares mouse mammary gland NbMM... 36 3.0 AA230895, AA230895 mw14g07.r1 Soares mouse 3NME12 5 Mus muscu... 36 3.0 W18052, W18052, mb83g03,r1 Soares mouse p3NMF19.5 Mus musculus... 36, 3.0 AA797681, AA797681 vx66c12.r1 Stratagene mouse skin (#937313)... 36 3.0 W66734, W66734 me26g05.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.0 AA968020, AA968020 uh07g01.r1 Soares mouse hypothalamus NMHv ... 36 3.0 AA051644, AA051644 mj55d12.rl Soares mouse embryo NbME13.5 14... 36 3.0 AA162797, AA162797 mr29g09.rl Soares mouse 3NbMS Mus musculus... 36 3.0 AA549644, AA549644 vk80f08.s1 Knowles Solter mouse 2 cell Mus... 36 3.0 AA273295, AA273295 vc01e01.r1 Soares mouse lymph node NbMLN M... 36 3.0 AA048480, AA048480 mj33d08.rl Soares mouse embryo NbME13.5 14... 36 3.0 AA098207, AA098207 mn83d01.r1 Stratagene mouse Tcell 937311 M... 36 3.0 AA027381, AA027381 mi05c06.rl Soares mouse placenta 4NbMP13.5... 36 3.0 AA544474, AA544474 vk33h06.rl Soares mouse mammary gland NbMM... 36 3.0 AA416466, AA416466 vd15c09.s1 Knowles Solter mouse 2 cell Mus... 36 3.0 AA285999, AA285999 vb88h08.rl Soares mouse 3NbMS Mus musculus... 36 3.0 AA175025, AA175025 ms85f06.r1 Soares mouse 3NbMS Mus musculus... 36 3.0 AA544386, AA544386 vk33f06.r1 Soares mouse mammary gland NbMM... 36 3.0 AA175557, AA175557 ms96g04.rl Soares mouse 3NbMS Mus musculus... 36 3.0 AA711924, AA711924 vu59f09.rl Soares mouse mammary gland NbMM... 36 3.0 AA734052, AA734052, vv22c10.rl Stratagene mouse heart (#937316... 36, 3.0) W53738, W53738 md12a12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.0 AA611837, AA611837 vo82a06.rl Barstead mouse myotubes MPLRB5 ... 36 3.0 AA879531, AA879531, vv96f06.r1 Soares mouse mammary gland NbMM... 36, 3.0 AA288625, AA288625 vb23g09.r1 Soares mouse 3NbMS Mus musculus... 36 3.0

AA784124, AA784124 d2b06a1.f1 Aspergillus nidulans 24hr asexu... 38 0.67 A1044911, A1044911 UI-R-C1-kk-e-05-0-UI.s1 UI-R-C1 Rattus nor... 36 2.6 AA550452, AA550452 1605m3 gmbPftB3.1, G. Roman Reddy Plasmodi... 36 2.6 F20017, ATTS6056 A. thaliana transcribed sequence; clone TAP... 36 2.6 AA786697, AA786697 k5d01a1.f1 Aspergillus nidulans 24hr asexu... 36 2.6 AA433457, AA433457 SW31CA2345SK Brugia malayi infective larva... 36 2.6

SEQ ID NO:550

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.20 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.20 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.20 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 0.80 AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 0.80 U86662, LEUBRÓGÉ2 Lycopersicon esculentum VPS41 (VPS41) mRNA,... 40 0.80 Y14330, HSY14330 Homo sapiens partial mRNA for jagged2 protein 38 3.2 AF003521, AF003521 Homo sapiens Jagged 2 mRNA, complete cds 38 3.2 AF029778, AF029778 Homo sapiens Jagged 2 mRNA, complete cds 38 3.2 Z71523, SCYNL247W S.cerevisiae chromosome XIV reading frame ... 38 3.2 AF029779, AF029779 Homo sapiens blAG2.del-E6 (JAG2) mRNA, alt... 38 3.2 AF029779, AF029779 Homo sapiens blAG2.del-E6 (JAG2) mRNA, alt... 38 3.2 X96722, SCCHXIVL S.cerevisiae DNA region from chromosome XIV... 38 3.2 X96722, SCCHXIVL S.cerevisiae DNA region from chromosome XIV... 38 3.2 X78972, SBSTRBF S.bluensis ISP 5564 genes strB and strF 38 3.2 X94912, HSPR22 H.sapiens Pr22 gene 38 3.2

HUMAN ESTs

AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0 AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-144 AA551799, AA551799 nk04a11.s1 NCI CGAP Co2 Homo sapiens cDNA ... 363 2e-98 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 2e-95 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 1e-90 AA121174, AA121174 zl88g08.s1 Stratagene colon (#937204) Homo... 317 1e-84 AA121198, AA121198 zl88g08.rl Stratagene colon (#937204) Homo... 317 1e-84 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.098 AI005204, AI005204 ou60c12.x1 NCI_CGAP_Br2 Homo sapiens cDNA ... 40 0.39 AA757360, AA757360 ah98a01.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 AI005324, AI005324 ou13h07.x1 Soares NFL T GBC S1 Homo sapien... 40 0.39 AA416559, AA416559 zu18c03.rl Soares NhHMPu S1 Homo sapiens c... 40 0.39 AA262162, AA262162 zs25b12.rl NCI CGAP GCB1 Homo sapiens cDNA... 40 0.39 AA824270, AA824270 aj29f01.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA826741, AA826741 85f12.s1 NCI_CGAP_Pr24 Homo sapiens cDNA... 40 0.39 AA813115, AA813115 aj44d06.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA403143, AA403143 zv66d01.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.39 AA725024, AA725024 ah97h10.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 AA804907, AA804907 oa89a01.s1 NCI CGAP GCB1 Homo sapiens cDNA... 40 0.39 AA628544, AA628544 af27h12.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39 AA618498, AA618498 np30a11.s1 NCI CGAP Pr22 Homo sapiens cDNA... 40 0.39 AA503727, AA503727 ne49g02.s1 NCI CGAP Co3 Homo sapiens cDNA ... 40 0.39 AA460961, AA460961 zx63b07.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39 AA770473, AA770473 ah89h06.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 AA759377, AA759377 ah54a10.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA629243, AA629243 zu77e03.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA903406, AA903406 ok62c11.s1 NCI CGAP GC4 Homo sapiens cDNA ... 40 0.39 AA215903, AA215903 hp0042.seq.F Fetal heart, Lambda ZAP Expre... 40 0.39

AA160827, AA160827, zo62e01.s1 Stratagene pancreas (#937208) H... 40 0.39 AA577174, AA577174 nm86e11.s1 NCI CGAP Co9 Homo sapiens cDNA ... 40 0.39 AA969632, AA969632 op38h05.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 N72025, N72025 vz96g02.s1 Homo sapiens cDNA clone 290930 3'. AA974988, AA974988 on59b06.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 W32428, W32428, zc05c12.s1 Soares parathyroid tumor NbHPA Homo... 40, 0.39 N21678, N21678 yx63g01.s1 Soares melanocyte 2NbHM Homo sapien... 40 0.39 AA860208, AA860208 ak48c10.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA814296, AA814296 nz07d08.sl NCI_CGAP_GCB1 Homo sapiens cDNA... 40 0.39 AA806381, AA806381 oc22g05.sl NCI CGAP GCB1 Homo sapiens cDNA... 40 0.39 AA435587, AA435587 zt85d07.s1 Soares testis NHT Homo sapiens ... 40 0.39 W45005, W45005 zc05c12.rl Soares parathyroid tumor NbHPA Homo... 40 0.39 AA393904, AA393904 zt85e06.rl Soares testis NHT Homo sapiens ... 40 0.39 AA759038, AA759038 ah75h11.s1 Soares testis NHT Homo sapiens ... 40 0.39 AA927863, AA927863 om18a08.s1 Soares NFL T GBC S1 Homo sapien... 40 0.39 AA461270, AA461270 zx63b07.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.39 AA417295, AA417295 zu18c03.sl Soares NhHMPu S1 Homo sapiens c... 40 0.39 W47466, W47466 zc34h02.rl Soares senescent fibroblasts NbHSF ... 40 0.39 AA262229, AA262229 zs25b12.s1 NCI CGAP GCB1 Homo sapiens cDNA... 40 0.39 AA587486, AA587486 nn84e09.s1 NCI CGAP Br2 Homo sapiens cDNA ... 40 0.39 AA401079, AA401079 zv66d01.s1 Soares total fetus Nb2HF8 9w Ho... 40 0.39 AA872272, AA872272 oh72a11.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.39 W47341, W47341 zc34h02.s1 Soares senescent fibroblasts NbHSF ... 40 0.39 N72024, N72024 vz96g01.s1 Homo sapiens cDNA clone 290928 3'. 40 0.39 N35076, N35076 vv19b08.s1 Homo sapiens cDNA clone 271671 3'. 40 0.39 AI040354, AI040354 ov33d12.x1 Soares parathyroid tumor NbHPA ... 40 0.39 AA946650, AA946650 og38h09.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.39 AA022495, AA022495 ze70e04.s1 Soares fetal heart NbHH19W Homo... 40 0.39 AA873216, AA873216 oh70f04.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.39 R82551, R82551 yj19d06.rl Homo sapiens cDNA clone 149195 5'. 38 1.5 H30248, H30248 vp42a01.s1 Homo sapiens cDNA clone 190056 3'. 38 1.5 AA161105, AA161105 zo58c05.s1 Stratagene pancreas (#937208) H... 38 1.5 AA948291, AA948291 oq34d02.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 38 1.5 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 1.5 AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 1.5

AA616807, AA616807 vn68c05.rl Barstead mouse irradiated colon... 180 6e-44
AA467482, AA467482 ve01a10.rl Soares mouse NbMH Mus musculus ... 40 0.14
AA543280, AA543280 vj80h05.rl Soares mouse mammary gland NbMM... 40 0.14
AA009071, AA009071 mg87b11.rl Soares mouse embryo NbME13.5 14... 40 0.14
AA106439, AA106439 ml59a08.rl Stratagene mouse testis (#93730... 40 0.14

AA416815, AA416815 zu08c01.rl Soares testis NHT Homo sapiens ... 38 1.5

AA014768, AA014768 mi66h04.rl Soares mouse embryo NbME13.5 14... 40 0.14 AA881111, AA881111 vz06e09.rl Soares mouse mammary gland NbMM... 40 0.14 AA049011, AA049011 mj48c09.rl Soares mouse embryo NbME13.5 14... 40 0.14 AA185487, AA185487 mt62c07.rl Soares 2NbMT Mus musculus cDNA ... 40 0.14 AA763419, AA763419 vw54a12.rl Soares mouse mammary gland NMLM... 40 0.14 AA016868, AA016868 mh36e12.rl Soares mouse placenta 4NbMP13.5... 40 0.14 AA833479, AA833479 uc91c03.r1 Soares mouse uterus NMPu Mus mu... 40 0.14 AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 40 0.14 AA711859, AA711859 vu59c10.rl Soares mouse mammary gland NbMM... 40 0.14 AA469884, AA469884 vf71g10.rl Barstead mouse pooled organs MP... 40 0.14 AA230758, AA230758 my32g10.rl Barstead mouse pooled organs MP... 40 0.14 AA497479, AA497479 vh29b12.rl Soares mouse mammary gland NbMM... 40 0.14 AA138067, AA138067 mq37c11.r1 Barstead MPLRB1 Mus musculus cD... 40 0.14 AA103139, AA103139 mo17f05.rl Life Tech mouse embryo 13 5dpc ... 40 0.14 AI047077, AI047077 uh61g06.rl Soares mouse embryonic stem cel... 40 0.14 AI048515, AI048515 uh61e08.r1 Soares mouse embryonic stem cel... 40 0.14 W61547, W61547 md57a02.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.14 AA007762, AA007762 mg76b03.rl Soares mouse embryo NbME13.5 14... 40 0.14 AA000268, AA000268 mg32e09.r1 Soares mouse embryo NbME13.5 14... 40 0.14 AA475425, AA475425 vh20g09.rl Soares mouse mammary gland NbMM... 40 0.14 AA014223, AA014223 mh20a03.r1 Soares mouse placenta 4NbMP13.5... 40 0.14 AA797372, AA797372 vw27b08.rl Soares mouse mammary gland NbMM... 40 0.14 AA106301, AA106301 ml81a09.rl Stratagene mouse kidney (#93731... 40 0.14 AA033481, AA033481 mi42b07.r1 Soares mouse embryo NbME13.5 14... 40 0.14 W77724, W77724 me84h06.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.14 W83172, W83172 mf09a06.r1 Soares mouse p3NMF19.5 Mus musculus... 40 0.14 AA038869, AA038869 mi95b10.rl Soares mouse p3NMF19.5 Mus musc... 40 0.14 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.55 AA111190, AA111190 mp66b11.rl Soares 2NbMT Mus musculus cDNA ... 36 2.2 AA840087, AA840087 uc99h12.rl Soares mouse uterus NMPu Mus mu... 36 2.2 AA239210, AA239210 mx89e02.rl Soares mouse NML Mus musculus c... 36 2.2 AA824205, AA824205 vy20g08.rl Stratagene mouse macrophage (#9... 36 2.2 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 2.2 AA089210, AA089210 mo05d10.rl Stratagene mouse lung 937302 Mu... 36 2.2 AA711873, AA711873 vu28e06.r1 Barstead mouse myotubes MPLRB5 ... 36 2.2 AA793845, AA793845 vr35e12.rl Barstead mouse myotubes MPLRB5 ... 36 2.2 AA645119, AA645119 vs72d03.r1 Stratagene mouse skin (#937313)... 36 2.2 AA967316, AA967316 vj47a03.rl Stratagene mouse skin (#937313)... 36 2.2 W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.2 AA218431, AA218431 my07e05.r1 Barstead mouse lung MPLRB2 Mus ... 36 2.2 AA796056, AA796056 vo65d01.rl Soares mouse mammary gland NbMM... 36 2.2 AA542324, AA542324 vk53e07.rl Stratagene mouse Tcell 937311 M... 36 2.2 AA530735, AA530735 vj32g11.rl Stratagene mouse diaphragm (#93... 36 2.2 AI047609, AI047609 uh63g07.rl Soares mouse embryonic stem cel... 36 2.2 AA591243, AA591243 vm18c04.r1 Knowles Solter mouse blastocyst... 36 2.2

276U

AA856298, AA856298 vw99b01.rl Soares 2NbMT Mus musculus cDNA ... 36 2.2 AA966976, AA966976 ua38f11.rl Soares mouse mammary gland NbMM... 36 2.2

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.sl UI-R-E1 Rattus nor... 42 0.031 AA801145, AA801145 EST190642 Normalized rat ovary, Bento Soar... 38 0.48 AI012760, AI012760 EST207211 Normalized rat placenta, Bento S., 38 0.48 AA874930, AA874930 UI-R-E0-ci-b-05-0-UI.s1 UI-R-E0 Rattus nor... 38 0.48 C82607, C82607 Oryctolagus cuniculus corneal endothelial cDN... 38 0.48 AA859865, AA859865 UI-R-E0-cc-b-04-0-UI.s1 UI-R-E0 Rattus nor... 38 0.48 C83463, C83463 Oryctolagus cuniculus corneal endothelial cDN... 38 0.48 AA801144, AA801144 EST190641 Normalized rat ovary, Bento Soar... 38 0.48 AA859448, AA859448 UI-R-A0-bf-b-01-0-UI.s1 UI-R-A0 Rattus nor... 38 0.48 AI009631, AI009631 EST204082 Normalized rat lung, Bento Soare... 38 0.48 AI009035, AI009035 EST203486 Normalized rat embryo, Bento Soa... 38 0.48 AA859542, AA859542 UI-R-E0-br-d-03-0-UI.sl UI-R-E0 Rattus nor... 38 0.48 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 1.9 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 1.9 Z32602, ATTS2730 A, thaliana transcribed sequence; clone PAP... 36 1.9 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 1.9 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 1.9 AA660859, AA660859, 00754 MtRHE Medicago truncatula cDNA 5' si... 36, 1.9 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 1.9 AA125602, AA125602 JM00M011.QM3 Miracidia Sic 3/96 Schistosom... 36 1.9 AA785775, AA785775 h4b05a1.fl Aspergillus nidulans 24hr asexu... 36 1.9

SEO ID NO:551

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.36 AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.36 U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.36 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.4 U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.4 Z46966, MMIMOGN44 M.musculus mRNA for imogen 44. 40 1.4 AC004301, AC004301 Drosophila melanogaster DNA sequence (P1 D... 40 1.4

HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0
AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0

276V

AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143 AA551799, AA551799 nk04a11.s1 NCI CGAP Co2 Homo sapiens cDNA ... 363 4e-98 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90 AA121174, AA121174 zl88g08.sl Stratagene colon (#937204) Homo... 317 2e-84 AA121198, AA121198 zl88g08.rl Stratagene colon (#937204) Homo... 317 2e-84 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.17 AA877455, AA877455 ob33g01.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 40 0.68 N35888, N35888 yy28b05.s1 Homo sapiens cDNA clone 272529 3'. AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.68 AA573297, AA573297 nk98d09.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 40 0.68 AA041240, AA041240 zf07g05.rl Soares fetal heart NbHH19W Homo... 40 0.68 AA514777, AA514777 ni24b01.s1 NCI_CGAP_Co4 Homo sapiens cDNA ... 40 0.68 R02514, R02514 ye70b08.r1 Homo sapiens cDNA clone 123063 5'. AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.68 AA888147, AA888147 04h11.s1 NCI_CGAP_Co10 Homo sapiens cDNA... 40 0.68 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.68 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.7 N98472, N98472 vy65a04.r1 Homo sapiens cDNA clone 278382 5'. AA416815, AA416815 zu08c01.rl Soares testis NHT Homo sapiens ... 38 2.7 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.7 AA948291, AA948291 oq34d02.s1 NCI CGAP GC4 Homo sapiens cDNA ... 38 2.7 R14449, R14449 yf81h09.r1 Homo sapiens cDNA clone 29034 5'. AA431486, AA431486 zw72g01.sl Soares testis NHT Homo sapiens ... 38 2.7

AA616807, AA616807 vn68c05.rl Barstead mouse irradiated colon... 180 1e-43 AA469884, AA469884 vf71g10.rl Barstead mouse pooled organs MP... 40 0.24 AA038869, AA038869 mi95b10.r1 Soares mouse p3NMF19.5 Mus musc... 40 0.24 AA185487, AA185487 mt62c07.rl Soares 2NbMT Mus musculus cDNA ... 40 0.24 AA230758, AA230758 my32g10.rl Barstead mouse pooled organs MP... 40 0.24 AA276740, AA276740 vc42a12.rl Soares mouse 3NbMS Mus musculus... 40 0.24 AA763419, AA763419 vw54a12.rl Soares mouse mammary gland NMLM... 40 0.24 AA106439, AA106439 ml59a08.rl Stratagene mouse testis (#93730... 40 0.24 AA250010, AA250010 mz59b12.rl Soares mouse lymph node NbMLN M... 38 0.97 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 0.97 AA139459, AA139459 mq86a03.r1 Stratagene mouse melanoma (#937... 38 0.97 AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 36 3.8 AA692425, AA692425 vt59b05.rl Barstead mouse irradiated colon... 36 3.8 AA049011, AA049011 mj48c09.rl Soares mouse embryo NbME13.5 14... 36 3.8 AA966976, AA966976 ua38f11.r1 Soares mouse mammary gland NbMM... 36 3.8 AI047077, AI047077 uh61g06.r1 Soares mouse embryonic stem cel... 36 3.8 AA103139, AA103139 mo17f05.rl Life Tech mouse embryo 13 5dpc ... 36 3.8

276W

276X

AA957268, AA957268 UI-R-E1-fq-e-06-0-UI.s1 UI-R-E1 Rattus nor... 42 0.055 AA891284, AA891284 EST195087 Normalized rat heart, Bento Soar... 40 0.22 Z83055, RNZ83055 R.norvegicus mRNA; expressed sequence tag: ... 40 0.22 AI010967, AI010967 EST205418 Normalized rat muscle, Bento Soa... 40 0.22 AA852049, AA852049 EST194818 Normalized rat spleen, Bento Soa... 40 0.22 H33489, H33489 EST109542 Rat PC-12 cells, NGF-treated (9 days... 40 0.22 AA799616, AA799616 EST189113 Normalized rat heart, Bento Soar... Z83044, RNZ83044 R.norvegicus mRNA; expressed sequence tag; ... 40 0.22 AA660819, AA660819 00713 MtRHE Medicago truncatula cDNA 5' 38 0.86 AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.86 T00613, T00613 wEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.86 AA785775, AA785775 h4b05a1.f1 Aspergillus nidulans 24hr asexu... 36 3.4 AA660859, AA660859 00754 MtRHE Medicago truncatula cDNA 5' si... 36 3.4 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.4 C68472, C68472 C.elegans cDNA clone yk305a12: 5' end, singl... 36 3.4 AA800635, AA800635 EST190132 Normalized rat lung, Bento Soare... 36 3.4 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 3.4 Z32603, ATTS2731 A. thaliana transcribed sequence; clone PAP... 36 3.4 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.4 AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.4 H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.4 Z33974, ATTS3035 A. thaliana transcribed sequence; clone PAP... 36 3.4 D45997, RICS10346A Rice cDNA, partial sequence (S10346 1A). AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.4 AA800634, AA800634 EST190131 Normalized rat lung, Bento Soare... 36 3.4 D46069, RICS10475A Rice cDNA, partial sequence (S10475 1A).

SEQ ID NO:552

U66201, MMU66201 Mus musculus fibroblast growth factor homolo... 42 0.38
AF020738, AF020738 Mus musculus fibroblast growth factor-rela... 42 0.38
U66197, HSU66197 Human fibroblast growth factor homologous fa... 42 0.38
40 0.38
40 1.5
U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 40 1.5
U85773, HSU85773 Human phosphomannomutase (PMM2) mRNA, comple... 40 1.5

HUMAN ESTs

W22160, W22160 63A6 Human retina cDNA Tsp509I-cleaved sublibr... 791 0.0 AA860926, AA860926 ak22d06.s1 Soares testis NHT Homo sapiens ... 650 0.0

AA348243, AA348243 EST54707 Hippocampus I Homo sapiens cDNA 5... 513 e-143 AA551799, AA551799 nk04a11.s1 NCI CGAP Co2 Homo sapiens cDNA ... 363 4e-98 AA327309, AA327309 EST30621 Colon I Homo sapiens cDNA 5' end 353 4e-95 AA344913, AA344913 EST50856 Gall bladder II Homo sapiens cDNA... 337 2e-90 AA121198, AA121198 zl88g08.rl Stratagene colon (#937204) Homo... 317 2e-84 AA121174, AA121174 zl88g08.sl Stratagene colon (#937204) Homo... 317 2e-84 AA001561, AA001561 ze46e07.s1 Soares retina N2b4HR Homo sapie... 42 0.18 AA172158, AA172158 zp29a01.s1 Stratagene neuroepithelium (#93... 40 0.72 N35888, N35888 vv28b05.s1 Homo sapiens cDNA clone 272529 3'. AA877455, AA877455 ob33g01.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.72 AA573297, AA573297 nk98d09.s1 NCI CGAP Co3 Homo sapiens cDNA ... 40 0.72 AA040802, AA040802 zf07g05.s1 Soares fetal heart NbHH19W Homo... 40 0.72 R02514, R02514 ve70b08.rl Homo sapiens cDNA clone 123063 5'. 40 0.72 AA514777, AA514777 ni24b01.sl NCI CGAP Co4 Homo sapiens cDNA ... 40 0.72 AA041240, AA041240 zf07g05.rl Soares fetal heart NbHH19W Homo... 40 0.72 AA888147, AA888147 04h11.sl NCI CGAP Co10 Homo sapiens cDNA... 40 0.72 AA039536, AA039536 zk39h10.s1 Soares pregnant uterus NbHPU Ho... 40 0.72 AA416734, AA416734 zu08c01.s1 Soares testis NHT Homo sapiens ... 38 2.8 N25839, N25839 vx22e05.rl Homo sapiens cDNA clone 262496 5'. AA431486, AA431486 zw72g01.s1 Soares testis NHT Homo sapiens ... 38 2.8 N98472, N98472 yy65a04.rl Homo sapiens cDNA clone 278382 5'. AA416815, AA416815 zu08c01.rl Soares testis NHT Homo sapiens ... 38 2.8 AA852281, AA852281 NHTBCae11g05r1 Normal Human Trabecular Bon... 38 2.8 AA948291, AA948291 oq34d02.s1 NCI CGAP GC4 Homo sapiens cDNA ... 38 2.8

AA616807, AA616807 vn68c05.rl Barstead mouse irradiated colon... 180 1e-43 AA185487, AA185487 mt62c07.rl Soares 2NbMT Mus musculus cDNA ... 40 0.26 AA276740, AA276740 vc42a12.r1 Soares mouse 3NbMS Mus musculus... 40 0.26 AA469884, AA469884 vf71g10.rl Barstead mouse pooled organs MP... 40 0.26 AA230758, AA230758 my32g10.rl Barstead mouse pooled organs MP... 40 0.26 AA038869, AA038869 mi95b10.rl Soares mouse p3NMF19.5 Mus musc... 40 0.26 AA106439, AA106439 ml59a08.rl Stratagene mouse testis (#93730... 40 0.26 AA763419, AA763419 vw54a12.rl Soares mouse mammary gland NMLM... 40 0.26 AA139459, AA139459 mg86a03.r1 Stratagene mouse melanoma (#937... 38 1.0 AA068686, AA068686 mm59a03.r1 Stratagene mouse embryonic carc... 38 1.0 AA218431, AA218431 my07e05.rl Barstead mouse lung MPLRB2 Mus ... 36 4.0 AI047077, AI047077 uh61g06.rl Soares mouse embryonic stem cel... 36 4.0 C87249, C87249 Mus musculus fertilized egg cDNA 3'-end seque... 36 4.0 AI035925, AI035925 ub49e05.rl Soares mouse mammary gland NbMM... 36 4.0 AA111190, AA111190 mp66b11.rl Soares 2NbMT Mus musculus cDNA ... 36 4.0 AA645119, AA645119 vs72d03.rl Stratagene mouse skin (#937313)... 36 4.0 AA530735, AA530735 vj32g11.r1 Stratagene mouse diaphragm (#93... 36 4.0

AA000268, AA000268 mg32e09.rl Soares mouse embryo NbME13.5 14... 36 4.0 AA793845, AA793845 vr35e12.r1 Barstead mouse myotubes MPLRB5 ... 36 4.0 AA840087, AA840087 uc99h12.r1 Soares mouse uterus NMPu Mus mu... 36 4.0 AA711873, AA711873 vu28e06.rl Barstead mouse myotubes MPLRB5 ... 36 4.0 AA790448, AA790448 vw04f09.r1 Soares mouse mammary gland NbMM... 36 4.0 AA106301, AA106301 ml81a09.r1 Stratagene mouse kidney (#93731... 36 4.0 AA543280, AA543280 vj80h05.rl Soares mouse mammary gland NbMM... 36 4.0 AA007762, AA007762 mg76b03.r1 Soares mouse embryo NbME13.5 14... 36 4.0 AA921560, AA921560 vy52c06.r1 Stratagene mouse lung 937302 Mu... 36 4.0 AA692425, AA692425 vt59b05.rl Barstead mouse irradiated colon... 36 4.0 AA833479, AA833479 uc91c03.r1 Soares mouse uterus NMPu Mus mu... 36 4.0 AA824205, AA824205 vy20g08.r1 Stratagene mouse macrophage (#9... 36 4.0 AA033481, AA033481 mi42b07.rl Soares mouse embryo NbME13.5 14... 36 4.0 W61547, W61547 md57a02.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0 AA796056, AA796056 vo65d01.r1 Soares mouse mammary gland NbMM... 36 4.0 AA467482, AA467482 ve01a10.rl Soares mouse NbMH Mus musculus ... 36 4.0 AA239210, AA239210 mx89e02.r1 Soares mouse NML Mus musculus c... 36 4.0 AA881111, AA881111 vz06e09.r1 Soares mouse mammary gland NbMM... 36 4.0 AA542324, AA542324 vk53e07.r1 Stratagene mouse Tcell 937311 M... 36 4.0 AA089210, AA089210 mo05d10.rl Stratagene mouse lung 937302 Mu... 36 4.0 W77724, W77724 me84h06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0 AI048515, AI048515 uh61e08.rl Soares mouse embryonic stem cel... 36 4.0 AA009071, AA009071 mg87b11.rl Soares mouse embryo NbME13.5 14... 36 4.0 AA475425, AA475425 vh20g09.rl Soares mouse mammary gland NbMM... 36 4.0 AA230661, AA230661 mw15f08.rl Soares mouse 3NME12 5 Mus muscu... 36 4.0 AA138067, AA138067 mq37c11.rl Barstead MPLRB1 Mus musculus cD... 36 4.0 W83172, W83172 mf09a06.rl Soares mouse p3NMF19.5 Mus musculus... 36 4.0 AA797372, AA797372 vw27b08.rl Soares mouse mammary gland NbMM... 36 4.0 AA711859, AA711859 vu59c10.rl Soares mouse mammary gland NbMM... 36 4.0 AA967316, AA967316 vi47a03.r1 Stratagene mouse skin (#937313)... 36 4.0 W87202, W87202 mf55g08.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.0 AA103139, AA103139 mo17f05.rl Life Tech mouse embryo 13 5dpc ... 36 4.0 AA014223, AA014223 mh20a03.r1 Soares mouse placenta 4NbMP13.5... 36 4.0 W62989, W62989 md88h12.rl Soares mouse embryo NbME13.5 14.5 M... 36 4.0 W20935, W20935 mb96c07.rl Soares mouse p3NMF19.5 Mus musculus... 36 4.0 AA966976, AA966976 ua38f11.rl Soares mouse mammary gland NbMM... 36 4.0 AA856298, AA856298 vw99b01.rl Soares 2NbMT Mus musculus cDNA ... 36 4.0 AA014768, AA014768 mi66h04.rl Soares mouse embryo NbME13.5 14... 36 4.0 AA497479, AA497479 vh29b12.rl Soares mouse mammary gland NbMM... 36 4.0 AA049011, AA049011 mj48c09.rl Soares mouse embryo NbME13.5 14... 36 4.0 AA016868, AA016868 mh36e12.rl Soares mouse placenta 4NbMP13.5... 36 4.0 AI047609, AI047609 uh63g07.rl Soares mouse embryonic stem cel... 36 4.0 AA591243, AA591243 vm18c04.rl Knowles Solter mouse blastocyst... 36 4.0

OGUSCOPO OBOZON

AA957268, AA957268, UI-R-E1-fg-e-06-0-UI.sl UI-R-E1 Rattus nor... 42, 0.058 T00613, T00613 wEST01334 Caenorhabditis elegans cDNA clone CE... 38 0.90 AA956139, AA956139 UI-R-E1-fi-h-08-0-UI.s1 UI-R-E1 Rattus nor... 38 0.90 AA660819, AA660819 00713 MtRHE Medicago truncatula cDNA 5' 38 0.90 AA125602, AA125602 JM00M011.QM3 Miracidia Sjc 3/96 Schistosom... 36 3.6 Z33974, ATTS3035 A, thaliana transcribed sequence; clone PAP... 36 3.6 C68472, C68472 C.elegans cDNA clone vk305a12: 5' end, singl... 36 3.6 AA785775, AA785775 h4b05a1.fl Aspergillus nidulans 24hr asexu... 36 3.6 Z32602, ATTS2730 A. thaliana transcribed sequence; clone PAP... 36 3.6 AA943364, AA943364 EST198863 Normalized rat brain, Bento Soar... 36 3.6 Z32603, ATTS2731 A, thaliana transcribed sequence; clone PAP... 36 3.6 AA842765, AA842765 M-EST080 Sugarcane mature stalk Saccharum ... 36 3.6 D45997, RICS10346A Rice cDNA, partial sequence (S10346 1A). 36 3.6 AA955567, AA955567 UI-R-E1-fa-a-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.6 AA800634, AA800634 EST190131 Normalized rat lung, Bento Soare... 36 3.6 AA660859, AA660859 00754 MtRHE Medicago truncatula cDNA 5' si... 36 3.6 AA800635, AA800635 EST190132 Normalized rat lung, Bento Soare... 36 3.6 D46069, RICS10475A Rice cDNA, partial sequence (S10475 1A). H32878, H32878 EST108396 Rat PC-12 cells, untreated Rattus sp... 36 3.6

SEQ ID NO:553

Z99297, HS262D12 Homo sapiens DNA sequence from PAC 262D12 o... 1963 0.0 Z81540, CEF46B3 Caenorhabditis elegans cosmid F46B3, complet... 40 0.89 U67488, U67488 Methanococcus jannaschii section 30 of 150 of ... 38 3.5 AE000786, AE000786 Borrelia burgdorferi plasmid lp28-2, compl... 38 3.5 L02053, OMMGSHTR1 Ommastrephes sloani glutathione transferase... 38 3.5 AC004521, ATAC004521 Arabidopsis thaliana chromosome II BAC F... 38 3.5 AE000619, HPAE000619 Helicobacter pylori section 97 of 134 of... 38 3.5 U39720, Mycoplasma genitalium ackA, licA, mucB, rpL10, rpL32... 38 3.5 AC004533, HUAC004533 Homo sapiens Chromosome 16 BAC clone CIT... 38 3.5 U62292, HSU62292 Human elastin (ELN) gene, partial eds 38 3.5

HUMAN ESTs

W02630, W02630 za52c02.rl Soares fetal liver spleen 1NFLS Hom... 1009 0.0 AA557183, AA557183 n174f12.sl NCI_CGAP_Br2 Homo sapiens cDNA... 874 0.0 AA761171, AA761171 nz09e11.sl NCI_CGAP_GCB1 Homo sapiens cDNA... 866 0.0 AA976975, AA976975 oq26g11.sl NCI_CGAP_GC4 Homo sapiens cDNA... 854 0.0 AA449515, AA449515 zx06b11.rl Soares total fetus Nb2HF8 9w Ho... 848 0.0

AA678392, AA678392 zi26h10.s1 Soares fetal liver spleen 1NFLS... 848 0.0 AA909198, AA909198 ol12d06.s1 Soares_NFL_T GBC_S1 Homo sapien... 831 0.0 W79208, W79208 zd79g05.r1 Soares fetal heart NbHH19W Homo sap... 813 0.0 W03125, W03125 za53c02.rl Soares fetal liver spleen 1NFLS Hom... 807 0.0 W94750, W94750 ze13h08.rl Soares fetal heart NbHH19W Homo sap... 785 0.0 AA354894, AA354894 EST63217 Jurkat T-cells V Homo sapiens cDN... 771 0.0 H70075, H70075 yr92b03.r1 Homo sapiens cDNA clone 212717 5'. W77859. W77859 zd70b08.r1 Soares fetal heart NbHH19W Homo sap... 728 0.0 AA425424, AA425424 zw48f03.s1 Soares total fetus Nb2HF8 9w Ho... 718 0.0 AA476893, AA476893 zu29f09.rl Soares ovary tumor NbHOT Homo s... 688 0.0 AA456676, AA456676 aa01h02.s1 Soares NhHMPu S1 Homo sapiens c... 688 0.0 AA662309, AA662309 nu97c11.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 668 0.0 W72135, W72135 zd70b08.s1 Soares fetal heart NbHH19W Homo sap... 650 0.0 N74362, N74362 za52c02.s1 Homo sapiens cDNA clone 296162 3'. N66917, N66917 za47d09.s1 Homo sapiens cDNA clone 295697 3'. 585 e-165 AA251287, AA251287 zs04c06.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 583 e-164 AA971082, AA971082 op70h01.s1 Soares_NFL_T_GBC_S1 Homo sapien... 567 e-160 W78165, W78165 zd79g05.s1 Soares fetal heart NbHH19W Homo sap... 565 e-159 AA253290, AA253290 zr71g03.rl Soares NhHMPu S1 Homo sapiens c... 559 e-157 AA729063, AA729063 nw22f08.s1 NCI_CGAP_GCB0 Homo sapiens cDNA... 557 e-157 AA987313, AA987313 or81h06.sl NCI_CGAP_Lu5 Homo sapiens cDNA ... 553 e-155 AA300954, AA300954 EST13832 Testis tumor Homo sapiens cDNA 5'... 541 e-152 AA425594, AA425594 zw48f03.r1 Soares total fetus Nb2HF8 9w Ho... 529 e-148 N24014, N24014 yx87g10.s1 Homo sapiens cDNA clone 268770 3'. 523 e-146 AA947355, AA947355 od86e12.s1 NCI_CGAP_Ov2 Homo sapiens cDNA ... 504 e-140 AA121074, AA121074 zl88b06.s1 Stratagene colon (#937204) Homo... 460 e-127 AA742964, AA742964 ny15d01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 454 e-126 AA306814, AA306814 EST177885 Colon carcinoma (HCC) cell line ... 452 e-125 W87699, W87699 zh65b11.r1 Soares fetal liver spleen 1NFLS S1 ... 446 e-123 W87700, W87700 zh65b11.s1 Soares fetal liver spleen 1NFLS S1 ... 438 e-121 AA449084, AA449084 zx06b11.s1 Soares total fetus Nb2HF8 9w Ho... 398 e-109 N99231, N99231 zb76f11.s1 Soares senescent fibroblasts NbHSF ... 391 e-106 N49900, N49900 yv24d04.s1 Homo sapiens cDNA clone 243655 3'. AA782911, AA782911 ai62a10.s1 Soares testis NHT Homo sapiens ... 365 6e-99 AA936553, AA936553 on23g11.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 361 9e-98 N74414, N74414 za53c02.s1 Homo sapiens cDNA clone 296258 3'. 353 2e-95 AA834628, AA834628 od98a10.s1 NCI CGAP Ov2 Homo sapiens cDNA ... 341 8e-92 AA693756, AA693756 zi55f11.s1 Soares fetal liver spleen 1NFLS... 341 8e-92 AA909616, AA909616 ol09d06.s1 Soares_NFL_T_GBC_S1 Homo sapien... 341 8e-92 H69662, H69662 yr92b03.s1 Homo sapiens cDNA clone 212717 3'. 321 8e-86 AA249558, AA249558 jj7521.seq.F Human fetal heart, Lambda ZAP... 317 1e-84 AA911960, AA911960 oh88g08.s1 NCI_CGAP_Co8 Homo sapiens cDNA ... 317 1e-84 AA969099, AA969099 op55e06.sl Soares_NFL_T_GBC_Sl Homo sapien... 303 2e-80 AA766191, AA766191 oa12g08.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 212 5e-53 AA689312, AA689312 nx05e10.sl NCI_CGAP_GC3 Homo sapiens cDNA ... 200 2e-49

nouseden esteren

AA418586, AA418586 zv93e05.rl Soares NhHMPu S1 Homo sapiens c... 182 5e-44 AA418570, AA418570 zv93e05.s1 Soares NhHMPu S1 Homo sapiens c... 182 5e-44 AA534939, AA534939 nf82f03.s1 NCI CGAP Co3 Homo sapiens cDNA ... 167 3e-39 AA888430, AA888430 nw74e05.s1 NCI CGAP Pr12 Homo sapiens cDNA... 167 3e-39 N50003, N50003 vv24d04.rl Homo sapiens cDNA clone 243655 5' s... 149 6e-34 AA535102, AA535102 nf84f06.s1 NCI CGAP Co3 Homo sapiens cDNA ... 135 1e-29 AA262335, AA262335 zr71g03.s1 Soares NhHMPu S1 Homo sapiens c... 129 6e-28 AA766681, AA766681 oa34c05.s1 NCI CGAP GCB1 Homo sapiens cDNA... 105 9e-21 AA761492, AA761492 nz27a05.s1 NCI CGAP GCB1 Homo sapiens cDNA... 101 1e-19 AA688350, AA688350 nv15a05.s1 NCI CGAP Pr22 Homo sapiens cDNA... 90 5e-16 AA347041, AA347041 EST53285 Fetal heart II Homo sapiens cDNA ... 76 8e-12 T94395, T94395 ye35e02.s1 Homo sapiens cDNA clone 119738 3'. 46 0.007 AA833565, AA833565 aj46a02.s1 Soares testis NHT Homo sapiens ... 46 0.007 AA095460, AA095460 14630.seq.F Fetal heart, Lambda ZAP Expres... 40 0.43 AA904415, AA904415 ok07e06.s1 Soares NFL T GBC S1 Homo sapien... 40 0.43 AI018800, AI018800 ov32h04.x1 Soares testis NHT Homo sapiens ... 38 1.7 AA631083, AA631083 nq77e07.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 1.7

AA399772, AA399772 vd70g05.rl Beddington mouse embryonic regi... 347 5e-94 AA467106, AA467106 vd98b04.r1 Soares mouse NbMH Mus musculus ... 309 1e-82 AI046844, AI046844 uh55c11.rl Soares mouse embryonic stem cel... 208 3e-52 AA475075, AA475075 vh11g05.r1 Soares mouse mammary gland NbMM... 194 4e-48 AA646094, AA646094 vs31e06.rl Stratagene mouse Tcell 937311 M... 186 1e-45 AA390020, AA390020 vb30e07.rl Soares mouse lymph node NbMLN M... 170 6e-41 AA245553, AA245553 my52g04.r1 Barstead mouse pooled organs MP... 170 6e-41 AA930741, AA930741 vs57b02.rl Stratagene mouse skin (#937313)... 155 4e-36 W62610, W62610 md58c06.rl Soares mouse embryo NbME13.5 14.5 M... 117 8e-25 AA239270, AA239270 my40e01.rl Barstead mouse pooled organs MP... 109 2e-22 AA015148, AA015148 mh16e01.rl Soares mouse placenta 4NbMP13.5... 54 1e-05 AA764095, AA764095 vw09h02.rl Soares 2NbMT Mus musculus cDNA ... 38 0.61 AA238570, AA238570 mv35h02.rl Barstead mouse pooled organs MP... 38 0.61 AA600576, AA600576 vm75f08.rl Knowles Solter mouse blastocyst... 38 0.61 AA636273, AA636273 vq76a10.s1 Knowles Solter mouse 2 cell Mus... 36 2.4 AA051407, AA051407 mi41f08.r1 Soares mouse embryo NbME13.5 14... 36 2.4 AA823136, AA823136 vw41b03.r1 Soares mouse mammary gland NbMM... 36 2.4 W83831, W83831 mf26a06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.4 D77944, MUSC0D06 Mouse embryonal carcinoma F9 cell cDNA, C0D06 36 2.4 AA915408, AA915408 vz29h04.rl Soares 2NbMT Mus musculus cDNA ... 36 2.4 AI047229, AI047229 uh63a09,r1 Soares mouse embryonic stem cel... 36 2.4 AA271880, AA271880 va73d01.rl Soares mouse 3NME12 5 Mus muscu... 36 2.4 AA475165, AA475165 vg95f01.rl Barstead mouse pooled organs MP... 36 2.4 AA619774, AA619774 vI58a05.s1 Knowles Solter mouse 2 cell Mus... 36 2.4

noused accord

AA673116, AA673116 vn49g11.r1 Barstead mouse myotubes MPLRB5 ... 36 2.4 AA870623, AA870623 vq24a07.r1 Barstead stromal cell line MPLR... 36 2.4 W58907, W58907 md52f12.r1 Soares mouse embryo NbME13.5 14.5 M... 36 2.4 AA690593, AA690593 vu53d05.r1 Soares mouse mammary gland NbMM... 36 2.4 AA754801, AA754801 vu21f03.r1 Barstead mouse myotubes MPLRB5 ... 36 2.4 AA271607, AA271607 va72a12.r1 Soares mouse 3NME12 5 Mus musc... 36 2.4 AA0475144, AA475144 vg95d01.r1 Barstead mouse p3NMF19.5 Mus musc... 36 2.4 AA197736, AA197736 mv02g08.r1 GuayWoodford Beier mouse kidney... 36 2.4

AA817944, AA817944 UI-R-A0-ag-e-01-0-UI.s1 UI-R-A0 Rattus nor... 40 0.14 F14714, SSC8B01 S.scrofa mRNA; expressed sequence tag (5'; c... 38 0.54 H91505, H91505 SWMFCA089SK Brugia malayi microfilaria cDNA (S... 36 2.1 AA998610, AA998610 UI-R-C0-if-c-04-0-UI.s1 UI-R-C0 Rattus nor... 36 2.1 AA993562, AA893562 EST197365 Normalized rat liver, Bento Soar... 36 2.1 AI008397, AI008397 EST202848 Normalized rat embryo, Bento Soa... 36 2.1

SEO ID NO:554

Z92544, HS313D11 Human DNA sequence from cosmid 313D11 from ... 700 0.0 Z46940, HSPRMTNP2 H.sapiens PRM1 gene, PRM2 gene and TNP2 gene 44 0.048 U85039, TMU85039 Theileria mutans 32 kDa immunodominant pirop... 42 0.19 U85251, TMU85251 Theileria mutans 32 kDa immunodominant pirop... 42 0.19 AF003630, AF003630 Theileria mutans clone 15, 32 kDa immunodo... 42 0.19 AF003629, AF003629 Theileria mutans clone 9, 32 kDa immunodom... 42 0.19 AB007884, AB007884 Homo sapiens KIAA0424 mRNA, partial cds 42 0.19 U85040, TMU85040 Theileria mutans 32 kDa immunodominant pirop... 42 0.19 Z97343, ATFCA8 Arabidopsis thaliana DNA chromosome 4, ESSA I... 40 0.75 L19655, TOSRNA1X Tomato ringspot virus polyprotein (RNA-1) ge... 40 0.75 M73822, TOSRNA1A Tomato ringspot virus RNA1 gene, 5' end. 40 0.75 L02543, BOVMTNNT Bos taurus nicotinamide nucleotide transhvdr... 40 0.75 J03534, BOVNAD Bovine mitochondrial nicotinamide nucleotide t... 40 0.75 M62862, TRBRTE Trypanosoma cruzi retrotransposon encoding gag... X72711, MMREPCFC M.musculus mRNA for replication factor C. l... 38 3.0 M88489, MUSNBP Mus musculus nonamer binding protein mRNA, com... 38 3.0 U36441, MMU36441 Mus musculus differentiation specific elemen... 38 3.0 AB002354, AB002354 Human mRNA for KIAA0356 gene, complete cds J03149, CATFMSC Cat (F.domesticus) c-fms proto-oncogene mRNA ... 38 3.0 J05475, CHKVICOLL Chicken type VI collagen alpha 2 (VI) subun... 38 3.0

AF038163, AF038163 Homo sapiens interleukin-15 (IL-15) gene, ... 38 3.0 X75917, HSFBMBF H.sapiens mRNA for fetal beta-MHC binding fa... 38 3.0 X0542, DMHSPG3 Drosophila heat shock gene 3 from 67B locus 38 3.0 D17315, DRODAGK Fruit fly mRNA for diacylglycerol kinase, co... 38 3.0 D17315, DRODAGK Fruit fly mRNA for diacylglycerol kinase, co... 38 3.0 D78638, D78638 Xenopus laevis mRNA for DNA (cytosine-5-)-met... 38 3.0 Z49204, MMNADPTRH M.musculus mRNA for NADP transhydrogenase. 38 3.1 L10425, BPEMETC Bordetella avium beta-cystathionase-lyase (me... 38 3.0 U01222, U01222 Mus musculus activator 1 large subunit (A1-p14... 38 3.0 U01223, U01222 Mus musculus activator 1 large subunit (A1-p14... 38 3.0 K01643, FCSSMONC Feline sarcoma virus (McDonough strain) tran... 38 3.0 K01643, FCSSMONC Feline sarcoma virus (McDonough strain) tran... 38 3.0 U07157, MMU07157 Mus musculus ISRE-binding protein (IBF-1) mR... 38 3.0 Z64961, HS183F7R H.sapiens CpG DNA, clone 18367, reverse rea... 38 3.0

HUMAN ESTs

SEO ID NO:555

AF039693, AF039693 Homo sapiens unknown protein mRNA, complet... 916 0.0 S51239, S51239 calreticulin [Aplysia californica=marine snail... 48 0.005 Z74035, CEF47G9 Caenorhabditis elegans cosmid F47G9, complet... 46 0.019 AF022814, AF022814 Fugu rubripes transcription factor (SLP-1)... 44 0.073 X82638, CSCYTOX C.sordelii cytotoxin gene U63063, SCU63063 Saccharomyces cerevisiae something about sil... 42 0.29 X63501, SCRPC53 S.cerevisiae RPC53 gene for RNA polymerase C... 42 0.29 U67572, U67572 Methanococcus jannaschii section 114 of 150 of... 42 0.29 Z74201, SCYDL153C S.cerevisiae chromosome IV reading frame O... U66032, MTU66032 Methanosarcina thermophila CO dehydrogenase/... 42 0.29 Z95620, SPBC3D6 S.pombe chromosome II cosmid c3D6 42 0.29 X97751, SCIV23 S.cerevisiae chrIV genes STE7, CLB3, MSH5, RP... 42 0.29 X65541, ATCAN A.thaliana mRNA for carbonic anhydrase 42 0.29 L14750, ATHCARANHY Arabidopsis thaliana carbonic anhydrase ge... 42 0.29 U00995, U00995 Rattus norvegicus TA1 mRNA, complete cds. 40 1.1 S73876, S73876 FPR3=FKBP-70 [Saccharomyces cerevisiae, Genomi... 40 1.1 U12825, SCU12825 Saccharomyces cerevisiae transcription facto... 40 1.1 Z74237, SCYDL189W S.cerevisiae chromosome IV reading frame O... 40 1.1 U76906, REU76906 Rhizobium etli FixK (fixK), FixN (fixN), mon... 40 1.1

AF050157, MMHC135G15 Mus musculus major histocompatibility lo... 40 1.1 X58857, SCPPH22 S.cerevisiae PPH22 gene for protein phosphat... 40 1.1 X79379, SCPROIS S.cerevisiae gene for proline isomerase Z68341, CEF01G4 Caenorhabditis elegans cosmid F01G4, complet... 40 1.1 M17192, MUSHOX1 Mouse homeodomain protein (Hox1.1) mRNA, comp... 40 1.1 U50307, CELF43H9 Caenorhabditis elegans cosmid F43H9. 40 1.1 S73144, S73144 bone sialoprotein [cattle, fetal bone cells, m... 40 1.1 L34569, YSCFPR3A Saccharomyces cerevisiae (clone pBYNG1) prol... D78303, D78303 Rattus norvegicus YT521 mRNA for RNA splicing... 40 1.1 X83276, SCDNAIV S.cerevisiae DNA for ORFs from chromosome IV U54558, HSU54558 Human translation initiation factor eIF3 p66... 40 1.1 Z50109, CEC09H10 Caenorhabditis elegans cosmid C09H10, compl... 40 1.1 X56983, EAVATP1 E.arvense gene for catalytic 70kDa V-ATPase ... 40 1.1 AB011125, AB011125 Homo sapiens mRNA for KIAA0553 protein, p... 40 1.1 Z46373, SC8248 S.cerevisiae chromosome XIII cosmid 8248 AF039042, CELZK697 Caenorhabditis elegans cosmid ZK697 40 1.1 Z28028, SCYKL028W S.cerevisiae chromosome XI reading frame O... 40 1.1 AC005266, AC005266 Homo sapiens chromosome 19, cosmid F23465,... 38 4.5 U60822, HSU60822 Human dystrophin (DMD) gene, exons 7, 8 and ... 38 4.5 AJ003141, HVAJ3141 Hordeum vulgare mRNA for stress-related p... 38 4.5 M26250, CRAGAP43 Goldfish (C.auratus) growth-associated prote... 38 4.5 X95267, GGRYR3 G.gallus mRNA for ryanodine receptor type 3 L37092, MUSCDPK Mus musculus cyclin-dependent kinase homologu... 38 4.5 Z72507, CEF17C11 Caenorhabditis elegans cosmid F17C11, compl... 38 4.5 U29608, DMU29608 Drosophila melanogaster large tumor suppress... 38 4.5 Z49072, CET24A11 Caenorhabditis elegans cosmid T24A11, compl... M83142, RATBGASTR Rattus norvegicus beta-galactoside-alpha 2,... 38 4.5 Z20656, HSCAMHCA Homo sapiens of cardiac alpha-myosin heavy ... 38 4.5 M82937, YSACS2A Candida albicans chitin synthase 2 (CHS2) gen... 38 4.5 U28888, MMU28888 Mus musculus neurogenic differentiation fact... 38 4.5 S66408, S66408 c-erbB=proto-oncogene {exon 1, promoter} [chic... 38 4.5 AC002396, AC002396 Arabidopsis thaliana chromosome I BAC F3I6... 38 4.5 AE000665, MMAE000665 Mus musculus TCR beta locus from bases 5... L39837, DROWARTS Drosophila melanogaster tumor supressor (war... 38 4.5 AG000377, AG000377 Homo sapiens genomic DNA, 21q region, clo... 38 4.5 X05632, HSMHCAG1 Human alpha-MHC gene for myosin heavy chain... 38 4.5 AC002108, AC002108 Genomic sequence from Mouse 4, complete se... 38 4.5 U37219, HSU37219 Human cyclophilin-like protein CyP-60 mRNA, ... 38 4.5 M58633, MUSP58GTA Mouse p58/GTA protein kinase mRNA, complete... 38 4.5 M25162, HUMMYHC08 Human cardiac alpha-myosin heavy chain (MYH... 38 4.5 Z46259, SCRPD3COS S.cerevisiae FY1676 RPD3 gene. 38 4.5 U09558, LJU09558 Lactobacillus johnsonii ATCC 11506 insertion... 38 4.5 U66160, MMUSC104 Mus musculus extracellular matrix associated... 38 4.5 Z73126, SCYLL021W S.cerevisiae chromosome XII reading frame ... 38 4.5 U83981, HSU83981 Homo sapiens apoptosis associated protein (G... 38 4.5

U59897, MRU59897 Macropus robustus hypoxanthine phosphoribosy... 38 4.5 D38256, YSCSCT1 Yeast gene for suppressor of ctr mutation 38 4.5 X69838, HSG9A H.sapiens mRNA for G9a 38 4.5 X52952, RNCMOSO Rat mRNA for c-mos 38 4.5 U37221, HSU37221 Human cyclophilin-like protein mRNA, partial... 38 4.5 X65880, DPRH4OP1 D.pseudoobscura rh4 opsin gene, exon 1 U58971, NTU58971 Nicotiana tabacum calmodulin-binding protein... 38 4.5 Z35773, SCYBL012C S.cerevisiae chromosome II reading frame O... 38 4.5 X67668, MMHMG2 M.musculus mRNA for high mobility group 2 pro... 38 4.5 L81727, HSL81727 Homo sapiens (subclone 1 d5 from P1 H69) DNA... 38 4.5 AL023800, HS833B2 Human DNA sequence *** SEQUENCING IN PROGR... 38 4.5 X62438, HVPERO H.vulgare mRNA for peroxidase AC004096, AC004096 Mouse Cosmid ma66a100 from 14D1-D2, comple... 38 4.5 AL008980, PFSC03050 Plasmodium falciparum DNA *** SEQUENCING... U64827, MMU64827 Mus musculus extracellular matrix associated... 38 4.5 AC003010, HUAC003010 Homo sapiens Chromosome 16 BAC clone CIT... 38 4.5 AE001002, AE001002 Archaeoglobus fulgidus section 105 of 172 ... 38 4.5 U86662, LEU86662 Lycopersicon esculentum VPS41 (tVPS41) mRNA,... 38 4.5 M20386, CHKEGFR Chicken epidermal growth factor receptor (CER... 38 4.5 M77637, CHKEGF Gallus gallus EGF/TGF-alpha receptor (c-erbB) ... 38 4.5 U08185, MMU08185 Mus musculus BALB/c zinc-finger protein Blim... 38 4.5 AC004231, AC004231 Homo sapiens chromosome 17, clone hRPC.111... 38 4.5 Z50100, HVC39SAT H.vulgare GAA-satellite DNA 38 4.5 X53731, SCSPA2G S, cerevisiae SPA2 gene 38 4.5 U37220, HSU37220 Human cyclophilin-like protein mRNA, partial... 38 4.5 X97560, SC32KBF S.cerevisiae 32kb DNA fragment of chromosome... 38 4.5 AB011479, AB011479 Arabidopsis thaliana genomic DNA, chromos... 38 4.5 U89340, LVU89340 Lytechinus variegtus Endo16 homolog (LyEndo1... 38 4.5 U73850, TCU73850 Trypanosoma cruzi 29 kDa proteasome subunit ... 38 4.5 AB006698, AB006698 Arabidopsis thaliana genomic DNA, chromos... 38 4.5 D37888, CYIMYC2 Cyprinus carpio c-myc gene for c-Myc, comple... 38 4.5 AF017349, MMDSGIII 7 Mus musculus desmoglein 3 (Dsg3) gene, i... 38 4.5 X91807, OSTA136 O.sativa mRNA for alpha-tubulin (clone OSTA-... 38 4.5 Z71587, SCYNL311C S.cerevisiae chromosome XIV reading frame ... 38 4.5

HUMAN ESTs

AA324311, AA324311 ESTZ7136 Cerebellum II Homo sapiens cDNA 5... 593 e-167 AA639190, AA639190 ns04a01.rl NCI_CGAP_Ewl Homo sapiens cDNA ... 513 e-143 AA172199, AA172199 zo96a06.rl Stratagene ovarian cancer (#937... 505 e-141 AA588066, AA588066 nk10d08.sl NCI_CGAP_Co2 Homo sapiens cDNA ... 502 e-140 AA412036, AA412036 zd68d09.sl Soares testis NHT Homo sapiens ... 502 e-140 AA508745, AA508745 ni23a03.sl NCI_CGAP_Co4 Homo sapiens DNA ... 502 e-140

AE000742, AE000742 Aguifex aeolicus section 74 of 109 of the ... 38 4.5

AA480337, AA480337 ne33a03.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 502 e-140 AA902270, AA902270 ok69e04.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 502 e-140 AA947303, AA947303 ok20d04.sl Soares NSF F8 9W_OT PA P S1 Hom... 502 e-140 R23642, R23642 yh35e03.r1 Homo sapiens cDNA clone 131740 5'. 490 e-136 AA811913, AA811913 ob51d06.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 464 e-128 AA172083, AA172083 zo96a06.s1 Stratagene ovarian cancer (#937... 464 e-128 AA725458, AA725458 ai16g01.s1 Soares parathyroid tumor NbHPA ... 400 e-109 R26558, R26558 yh35e02.s1 Homo sapiens cDNA clone 131738 3'. AA402403, AA402403 zt68d09.r1 Soares testis NHT Homo sapiens ... 315 6e-84 R58372, R58372 G3243 Fetal heart Homo sapiens cDNA clone G324... 262 8e-68 AA389703, AA389703 M421 Fetal heart, Lambda ZAP Express Homo ... 202 6e-50 W25749, W25749 11b4 Human retina cDNA randomly primed sublibr... 103 4e-20 W27158, W27158 22h9 Human retina cDNA randomly primed sublibr... 66 1e-08 T65784, T65784 yc11f10.s1 Homo sapiens cDNA clone 80395 3' si... 42 0.14 AA179601, AA179601 zp49f10.rl Stratagene HeLa cell s3 937216 ... 42 0.14 AA928679, AA928679 on48e08.s1 NCI CGAP Co8 Homo sapiens cDNA ... 40 0.55 AA887972, AA887972 nq95g11.s1 NCI CGAP Co10 Homo sapiens cDNA... 40 0.55 W46946, W46946 zc40c05.s1 Soares senescent fibroblasts NbHSF ... 40 0.55 AA887862, AA887862 nq99b08.s1 NCI CGAP Co10 Homo sapiens cDNA... 40 0.55 AA554819, AA554819 ni34d08.s1 NCI_CGAP_Lu1 Homo sapiens cDNA ... 40 0.55 AA557362, AA557362 nl81d12.s1 NCI_CGAP Br2 Homo sapiens cDNA ... 40 0.55 AA252258, AA252258 zr29e04.s1 Stratagene NT2 neuronal precurs... 40 0.55 N34310, N34310 yy52b10.s1 Homo sapiens cDNA clone 277147 3' s... 40 0.55 AA552228, AA552228 nk06b04.s1 NCI_CGAP Co2 Homo sapiens cDNA ... 40 0.55 AI017648, AI017648 ou99b02.x1 NCI_CGAP_Kid3 Homo sapiens cDNA... 40 0.55 T17395, T17395 NIB846 Normalized infant brain, Bento Soares H... 40 0.55 AA219659, AA219659 zr05e10.s1 Stratagene NT2 neuronal precurs... 40 0.55 AA463841, AA463841 zx67f06.r1 Soares total fetus Nb2HF8 9w Ho... 40 0.55 N66817, N66817 za09b11.s1 Homo sapiens cDNA clone 292029 3' s... 40 0.55 AA167358, AA167358 zp06f12.s1 Stratagene ovarian cancer (#937... 40 0.55 AA063505, AA063505 zf70d02.r1 Soares pineal gland N3HPG Homo ... 40 0.55 AA731625, AA731625 nw64a04.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 40 0.55 AA100119, AA100119 zl80g04.s1 Stratagene colon (#937204) Homo... 40 0.55 AA181572, AA181572 zp51d04.s1 Stratagene HeLa cell s3 937216 ... 40 0.55 AA327182, AA327182 EST30459 Colon I Homo sapiens cDNA 5' end ... 40 0.55 R48608, R48608 yj65f07.s1 Homo sapiens cDNA clone 153637 3' s... 40 0.55 AA678485, AA678485 ah06e04.s1 Gessler Wilms tumor Homo sapien... 40 0.55 AA082353, AA082353 zn38c11.r1 Stratagene endothelial cell 937... 40 0.55 AA633213, AA633213 nq57c06.s1 NCI_CGAP_Co9 Homo sapiens cDNA ... 40 0.55 W38410, W38410 zc77g09.s1 Pancreatic Islet Homo sapiens cDNA ... 40 0.55 AA345893, AA345893 EST51967 Gall bladder I Homo sapiens cDNA ... 40 0.55 N26876, N26876 yx97f06.s1 Homo sapiens cDNA clone 269699 3' s... 40 0.55 N95279, N95279 zb60c09.s1 Soares fetal lung NbHL19W Homo sapi... 40 0.55 AI041637, AI041637 ox92h08.x1 Soares senescent fibroblasts Nb... 40 0.55

N67830, N67830 za05d12.s1 Homo sapiens cDNA clone 291671 3' s... 40 0.55

AA535094, AA535094 nf84e06.sl NCI_CGAP_Co3 Homo sapiens cDNA ... 40 0.55 AA514414, AA514414 nf57d11.sl NCI CGAP Co3 Homo sapiens cDNA ... 40 0.55 T56802, T56802 ya71h07.s2 Homo sapiens cDNA clone 67165 3' co... 40 0.55 N68147, N68147 vz55f12.sl Homo sapiens cDNA clone 286991 3' s... 40 0.55 AA535811, AA535811 nf93g10.s1 NCI CGAP Co3 Homo sapiens cDNA ... 40 0.55 AA115591, AA115591 zl05g09.s1 Soares pregnant uterus NbHPU Ho... 40 0.55 N75851, N75851 za96g11.s1 Homo sapiens cDNA clone 300452 3'. AA534433, AA534433 nf80a08.sl NCI CGAP Co3 Homo sapiens cDNA ... 40 0.55 H99778, H99778 vx36g01.s1 Homo sapiens cDNA clone 263856 3' s... 40 0.55 AA970859, AA970859 oo81h03.s1 NCI CGAP Kid5 Homo sapiens cDNA... 40 0.55 F02131, HSC0PF092 H. sapiens partial cDNA sequence; clone c-... 40 0.55 AA810279, AA810279 od14g11.s1 NCI CGAP GCB1 Homo sapiens cDNA... 40 0.55 AA595146, AA595146 nl84b01.sl NCI_CGAP_Br2 Homo sapiens cDNA ... 40 0.55 AA632386, AA632386 np67e06.sl NCI CGAP Br2 Homo sapiens cDNA ... 40 0.55 AA135124, AA135124 zo24c04.s1 Stratagene colon (#937204) Homo... 40 0.55 AA143500, AA143500 zo31b10.s1 Stratagene colon (#937204) Homo... 40 0.55 AA854992, AA854992 ai53g12.s1 Soares testis NHT Homo sapiens ... 40 0.55 AA156872, AA156872 zl20h07.sl Soares pregnant uterus NbHPU Ho... 40 0.55 AA160994, AA160994 zq41c12.s1 Stratagene hNT neuron (#937233)... 40 0.55 AA961724, AA961724 or60a10.sl NCI CGAP GC3 Homo sapiens cDNA ... 40 0.55 AA551210, AA551210 nj27e09.sl NCI CGAP AA1 Homo sapiens cDNA ... 40 0.55 R44103, R44103 yg27c10.s1 Homo sapiens cDNA clone 33636 3'. 40 0.55 AA938086, AA938086 oi08h08.sl NCI CGAP Mel3 Homo sapiens cDNA... 40 0.55 AA576021, AA576021 nm57d11.s1 NCI CGAP Br3 Homo sapiens cDNA ... 40 0.55 AA722725, AA722725 zg86b09.s1 Soares fetal heart NbHH19W Homo... 40 0.55 AA678948, AA678948 ah08h11.s1 Gessler Wilms tumor Homo sapien... 40 0.55 W07435, W07435 za96g11.rl Soares fetal lung NbHL19W Homo sapi... 40 0.55 T34639, T34639 EST72167 Homo sapiens cDNA 5' end similar to s... 40 0.55 AA632245, AA632245 np67b09.s1 NCI CGAP Br2 Homo sapiens cDNA ... 40 0.55 R98701, R98701 vr31f08.s1 Homo sapiens cDNA clone 206919 3'. 40 0.55 R76418, R76418 yi58a10.s1 Homo sapiens cDNA clone 143418 3'. AI028447, AI028447 ow08b09.x1 Soares parathyroid tumor NbHPA ... 40 0.55 AI002929, AI002929 an15e12.s1 Gessler Wilms tumor Homo sapien... 40 0.55 AA779388, AA779388 ae26a03.s1 Soares NbHFB Homo sapiens cDNA ... 40 0.55 AA776220, AA776220 ah10f02.s1 Gessler Wilms tumor Homo sapien... 40 0.55 AA815223, AA815223 oc05c04.s1 NCI CGAP GCB1 Homo sapiens cDNA... 40 0.55 W60807, W60807 zd27b08.s1 Soares fetal heart NbHH19W Homo sap... 40 0.55 AA666007, AA666007 ag71g01.s1 Gessler Wilms tumor Homo sapien... 40 0.55 AA643849, AA643849 np26f07.s1 NCI CGAP Pr22 Homo sapiens cDNA... 40 0.55 AA846740, AA846740 aj99b12.s1 Soares parathyroid tumor NbHPA ... 40 0.55 AA598498, AA598498 ae38h01.s1 Gessler Wilms tumor Homo sapien... 40 0.55 AA535972, AA535972 nf95a01.s1 NCI CGAP Co3 Homo sapiens cDNA ... 40 0.55 AA488544, AA488544 ab37g06.rl Stratagene HeLa cell s3 937216 ... 40 0.55 AA866044, AA866044 oh52g07.s1 NCI CGAP GC4 Homo sapiens cDNA ... 40 0.55 C14370, C14370 Human fetal brain cDNA 5'-end GEN-050F01 40 0.55

AA237204, AA237204 mx18d02.r1 Soares mouse NML Mus musculus c... 167 1e-39 AA563402, AA563402 vl75d08.rl Knowles Solter mouse blastocyst... 38 0.78 AA413261, AA413261 ve52f04.rl Beddington mouse embryonic regi... 38 0.78 AA097645, AA097645 mm36f09.rl Stratagene mouse skin (#937313)... 38 0.78 AA122578, AA122578 mn25b08.r1 Beddington mouse embryonic regi... 38 0.78 AA122581, AA122581 mn25c08.r1 Beddington mouse embryonic regi... 38 0.78 AA646168, AA646168 vn11e06.rl Stratagene mouse Tcell 937311 M... 36 3.1 AA200881, AA200881 mu03c09.rl Soares mouse 3NbMS Mus musculus... 36 3.1 AI048938, AI048938 uc84h06.y1 Sugano mouse kidney mkia Mus mu... 36 3.1 AA217675, AA217675 mv01b09.rl Soares mouse lymph node NbMLN M... 36 3.1 AI006387, AI006387 ua71d09.rl Soares 2NbMT Mus musculus cDNA ... 36 3.1 AA162722, AA162722 mn42b07.rl Beddington mouse embryonic regi... 36 3.1 AA207387, AA207387 mv89a11.rl GuayWoodford Beier mouse kidney... 36 3.1 AA511382, AA511382 vg14b04.r1 Soares mouse NbMH Mus musculus ... 36 3.1 AA123112, AA123112 mn30g01.r1 Beddington mouse embryonic regi... 36 3.1 AA106683, AA106683 ml83h06.rl Stratagene mouse kidney (#93731... 36 3.1 AA105882, AA105882 ml84h07.r1 Stratagene mouse kidney (#93731... 36 3.1 W12171, W12171 ma59a10.rl Soares mouse p3NMF19.5 Mus musculus... 36 3.1 AA208446, AA208446 mv85e01.rl GuayWoodford Beier mouse kidney... 36 3.1 AA451370, AA451370 vf84h02.r1 Soares mouse mammary gland NbMM... 36 3.1 AA244639, AA244639 mx02g12.rl Soares mouse NML Mus musculus c... 36 3.1 AA267119, AA267119 mz74d07.rl Soares mouse lymph node NbMLN M... 36 3.1 AA561847, AA561847 v127a12.r1 Stratagene mouse Tcell 937311 M.,. 36 3.1 AA237313, AA237313 mx17b11.rl Soares mouse NML Mus musculus c... 36 3.1 AA145817, AA145817 mq68a12.rl Soares 2NbMT Mus musculus cDNA ... 36 3.1 AA052080, AA052080 mf69f12.r1 Soares mouse embryo NbME13.5 14... 36 3.1 AA000646, AA000646 mg23f09.rl Soares mouse embryo NbME13.5 14... 36 3.1 AA510521, AA510521 vh59a05.rl Soares mouse mammary gland NbMM... 36 3.1 AI006122, AI006122 ua86h01.rl Soares mouse mammary gland NbMM... 36 3.1 AA987039, AA987039 uc74e05.x1 Sugano mouse liver mlia Mus mus... 36 3.1 W77413, W77413 me64d06.rl Soares mouse embryo NbME13.5 14.5 M... 36 3.1 AA114809, AA114809 mn17e09.rl Beddington mouse embryonic regi... 36 3.1 AA793564, AA793564 vn54c05.rl Barstead mouse myotubes MPLRB5 ... 36 3.1 AA174537, AA174537 mt10f09.r1 Soares mouse 3NbMS Mus musculus... 36 3.1 W62181, W62181 md87d08.rl Soares mouse embryo NbME13.5 14.5 M... 36 3.1 AA272905, AA272905 va39d01.rl Soares mouse 3NME12 5 Mus muscu... 36 3.1 AA286005, AA286005 va30e05.r1 GuayWoodford Beier mouse kidney... 36 3.1 AA212823, AA212823 mw81c07.rl Soares mouse NML Mus musculus c... 36 3.1 AA125061, AA125061 mq83d10.r1 Stratagene mouse melanoma (#937... 36 3.1

AA519228, AA519228 TgESTzz39h02.s1 TgME49 invivo Bradyzoite c... 44 0.011

nouged astron

AA520185, AA520185 TgESTzz39d03.s1 TgME49 invivo Bradyzoite c... 44 0.011 AA531917, AA531917 TgESTzz48f01.r1 TgME49 invivo Bradyzoite c... 44 0.011 AA519997, AA519997 TgESTzz36h03,rl TgME49 invivo Bradyzoite c... 44 0.011 AA520811, AA520811 TgESTzz64d05.r1 TgME49 invivo Bradyzoite c... 44 0.011 AA520866, AA520866 TgESTzz68e05.rl TgME49 invivo Bradyzoite c... 44 0.011 AA519844, AA519844 TgESTzz36c03.r1 TgME49 invivo Bradvzoite c... 44 0.011 AA274295, AA274295 TgESTzz24c11.s1 TgME49 invivo Bradyzoite c... 44 0.011 AA520901, AA520901 TgESTzz65a05.rl TgME49 invivo Bradyzoite c... AA519829, AA519829 TgESTzz36a02.rl TgME49 invivo Bradyzoite c... 44 0.011 AA531839, AA531839 TgESTzz47h05.r1 TgME49 invivo Bradyzoite c... 44 0.011 C70525, C70525 C.elegans cDNA clone vk409g6 : 5' end, single... 44 0.011 AA520235, AA520235 TgESTzz53c06.rl TgME49 invivo Bradyzoite c... 42 0.044 T42800, T42800 6063 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 42 0.044 R29976, R29976 12581 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 42 0.044 H32045, H32045 EST106774 Rat PC-12 cells, untreated Rattus sp... 40 0.18 AA819924, AA819924 MF5MA171.AE3 S. mansoni female adult Lambd... 40 0.18 H37128, H37128 15257 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 40 0.18 T04367, T04367 414 Lambda-PRL2 Arabidopsis thaliana cDNA clon... 40 0.18 R90528, R90528 16883 Lambda-PRL2 Arabidopsis thaliana cDNA cl... AA660422, AA660422 00298 MtRHE Medicago truncatula cDNA 5' 40 0.18 U94861, RRU94861 Rattus norvegicus clone HCY3 mRNA sequence 40 0.18 F14275, ATTS5197 A. thaliana transcribed sequence; clone YBY... 38 0.69 W43730, W43730, 23107 CD4-16 Arabidopsis thaliana cDNA clone H... 38 0.69 N65025, N65025 20065 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 38 0.69 AI001628, AI001628 EST0210 Tilapia brain cDNA library in pUC1... 38 0.69 H74687, H74687 383 Brassica napus cDNA clone R25R. AA395597, AA395597 27394 Lambda-PRL2 Arabidopsis thaliana cDN... 38 0.69 AA753070, AA753070 97AS2091 Rice Immature Seed Lambda ZAPII c... 38 0.69 D41274, RICS3647A Rice cDNA, partial sequence (S3647 1A). Z25731, ATTS1208 A. thaliana transcribed sequence; clone VCV... 38 0.69 N82780, N82780 TgESTzy34e03.rl TgRH Tachyzoite cDNA Toxoplasm... 38 0.69 AA597822, AA597822, 29889 Lambda-PRL2 Arabidopsis thaliana cDN... 38, 0.69 AA948906, AA948906 LD27590.5prime LD Drosophila melanogaster ... 38 0.69 AI013695, AI013695 EST208370 Normalized rat spleen, Bento Soa... 38 0.69 AA753263, AA753263 96BS0294 Rice Immature Seed Lambda ZAPII c... 38 0.69 F14402, ATTS5324 A. thaliana transcribed sequence; clone TAP... 36 2.7 T46158, T46158 9421 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 2.7 C91400, C91400 Dictyostelium discoideum slug cDNA, clone SSK169 36 2.7 T46009, T46009 9272 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 2.7 AA440655, AA440655 LD15510.5prime LD Drosophila melanogaster ... 36 2.7 AA559374, AA559374 MU002092.NH3 York-Harrop-lung-A Schistosom... 36 2.7 Z32623, ATTS2751 A, thaliana transcribed sequence; clone YAP... 36 2.7 T43683, T43683 6946 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 2.7 AA263535, AA263535 LD06645.5prime LD Drosophila melanogaster ... 36 2.7 C37095, C37095 C.elegans cDNA clone yk482c11: 3' end, singl... 36 2.7

C57017, C57017 C.elegans cDNA clone vk308h9; 3' end, single... 36, 2, 7 C93857, C93857 Dictyostelium discoideum slug cDNA, clone SSL794 36 2.7 C92242, C92242 Dictyostelium discoideum slug cDNA, clone SSD283 36 2.7 Z33976, ATTS3037 A. thaliana transcribed sequence; clone YAP... 36 2.7 R62091, R62091 EST351 Strongylocentrotus purpuratus cDNA 5' end. 36 2.7 AA567455, AA567455 HL01288.5prime HL Drosophila melanogaster ... 36 2.7 C74456, C74456 Rice cDNA, partial sequence (E31357 1A) AA753227, AA753227 97AS2316 Rice Immature Seed Lambda ZAPII c... C92456, C92456 Dictyostelium discoideum slug cDNA, clone SSE569 36 2.7 T20458, T20458 2466 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 2.7 R29905, R29905 12510 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 36 2.7 M79841, M79841 wEST00378 Caenorhabditis elegans cDNA clone CE... 36 2.7 Z17562. ATTS0136 A. thaliana transcribed sequence; clone TAT... 36 2.7 D71983, CELK084H2R C.elegans cDNA clone yk84h2: 3' end, sin... 36 2.7 T20404, T20404 2412 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 2.7 AI012789, AI012789 EST207240 Normalized rat placenta, Bento S... 36 2.7 U83048, BTU83048 Bos taurus clone 0429 mRNA sequence AA660182, AA660182 00022 MtRHE Medicago truncatula cDNA 5' si... 36 2.7 D48514, RICS14740A Rice cDNA, partial sequence (S14740 1A). 36 2.7 C90110, C90110 Dictyostelium discoideum slug cDNA, clone SSI103 36 2.7 H36880, H36880 15009 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 36 2.7 AA699152, AA699152 HL07807.5prime HL Drosophila melanogaster ... 36 2.7 C11922, C11922 C.elegans cDNA clone yk144a11: 5' end, singl... 36 2.7 AA816691, AA816691 LD03795.5prime LD Drosophila melanogaster ... 36 2.7

SEQ ID NO:556

X99668, MM22A3 M.musculus mRNA for exon from unknown gene 22A3 260 5e-67 Z83760, CICOS41 Ciona intestinalis DNA sequence from cosmid ... 40 0.94 Z75710, CED1081 Caenorhabditis elegans cosmid D1081, complet... 40 0.94 U73628, HSU73628 Human chromosome 11 101h11 cosmid, complete ... 40 0.94 X99757, DMDYDTRO D.melanogaster mRNA for dystrophin U51189, HIVU51189 HIV-1 clone 93th253 from Thailand, complete... 38 3.7 AC004118, AC004118 Drosophila melanogaster (P1 DS06238 (D26))... 38 3.7 U50313, CELF44C4 Caenorhabditis elegans cosmid F44C4. AC004503, AC004503 Homo sapiens chromosome 5, P1 clone 1354A7... 38 3.7 M16840, WHTCPCA2 Wheat Asp-tRNA gene. 38 3.7 Y13381, RNAMPH1 Rattus norvegicus mRNA for amphiphysin, amph1 AC002994, AC002994 Homo sapiens chromosome 17, clone HRPC987K... AB008271, AB008271 Arabidopsis thaliana genomic DNA, chromos... 38 3.7 D49701, ASNNIAD Aspergillus oryzae niaD gene for nitrate red... 38 3.7

 X59422, HSPLD1 H.sapiens Pl d1 repetitive DNA 38 3.7 Z98555, PFSC03027 Plasmodium falciparum DNA *** SEQUENCING I... 38 3.7

HUMAN ESTs

AA315671, AA315671 EST187451 Colon carcinoma (HCC) cell line ... 932 0.0 U56653, HSU56653 Human heat shock inducible mRNA AA487685, AA487685 ab23b09.rl Stratagene lung (#937210) Homo ... 751 0.0 AA044797, AA044797 zk67g12.rl Soares pregnant uterus NbHPU Ho... 749 0.0 AA314922, AA314922 EST186735 HCC cell line (matastasis to liv... 698 0.0 AA082278, AA082278 zn42d12.rl Stratagene endothelial cell 937... 668 0.0 H22613, H22613 yn64f03.rl Homo sapiens cDNA clone 173213 5'. AA044743, AA044743 zk67g12.s1 Soares pregnant uterus NbHPU Ho... 622 e-176 AA487470, AA487470 ab23b09.s1 Stratagene lung (#937210) Homo ... 601 e-170 AA121057, AA121057 zm22b03.rl Stratagene pancreas (#937208) H... 581 e-164 AA194396, AA194396 zq05g05.s1 Stratagene muscle 937209 Homo s... 535 e-150 AA384283, AA384283 EST97787 Thyroid Homo sapiens cDNA 5' end 535 e-150 AA669015, AA669015 ab88f01.s1 Stratagene lung (#937210) Homo ... 535 e-150 AA194336, AA194336 zq05g05.rl Stratagene muscle 937209 Homo s... 505 e-141 R96173, R96173 vt84e09.rl Homo sapiens cDNA clone 231016 5'. 486 e-135 AA028934, AA028934 zk08b09.s1 Soares pregnant uterus NbHPU Ho... 484 e-134 AA564849, AA564849 nj22c04.s1 NCI CGAP AA1 Homo sapiens cDNA ... 442 e-122 AA932576, AA932576 oo57g10.s1 NCI CGAP Lu5 Homo sapiens cDNA ... 440 e-121 AA876265, AA876265 oi12g09.s1 NCI CGAP GC4 Homo sapiens cDNA ... 434 e-120 AA025525, AA025525 ze86a11.s1 Soares fetal heart NbHH19W Homo... 430 e-118 U56654, HSU56654 Human heat shock inducible mRNA 426 e-117 AA746600, AA746600 nx18c02.s1 NCI CGAP GC3 Homo sapiens cDNA ... 406 e-111 AA876346, AA876346 oj24a11.s1 NCI CGAP Kid5 Homo sapiens cDNA... 406 e-111 W23082, W23082 78D1 Human retina cDNA Tsp509I-cleaved sublibr... 402 e-110 AI034059, AI034059 ow14h11.x1 Soares parathyroid tumor NbHPA ... 357 2e-96 AA662934, AA662934 nu92d09.s1 NCI CGAP Pr22 Homo sapiens cDNA... 323 2e-86 AA844331, AA844331 ai95f01.s1 Soares parathyroid tumor NbHPA ... 301 8e-80 AA249866, AA249866 y0761.seq.F Human fetal heart, Lambda ZAP ... 297 1e-78 R19215, R19215 vg24b07,r1 Homo sapiens cDNA clone 33126 5'. 280 3e-73 T39355, T39355 ya04g08.rl Homo sapiens cDNA clone 60542 5'. 254 2e-65 AA731264, AA731264 nw57c08.sl NCI CGAP GCB1 Homo sapiens cDNA... 220 2e-55 AA768549, AA768549 oa67c07.s1 NCI CGAP GCB1 Homo sapiens cDNA... 220 2e-55 AA668506, AA668506 ac49a11.s1 Stratagene hNT neuron (#937233)... 216 4e-54 T55337, T55337 vb79b05.s1 Homo sapiens cDNA clone 77361 3'. AA860575, AA860575 aj86a09.s1 Soares parathyroid tumor NbHPA ... 198 8e-49 AA335548, AA335548 EST39962 Epididymus Homo sapiens cDNA 5' end 109 6e-22 R13183, R13183 vf73f02.r1 Homo sapiens cDNA clone 27960 5'. 58 2e-06 T80034, T80034 yd04c06.rl Homo sapiens cDNA clone 24672 5'. AA595230, AA595230 nl84g02.sl NCI_CGAP Br2 Homo sapiens cDNA ... 38 1.8

nougeoed recomp

AA871935, AA871935 vq42h02.rl Barstead bowel MPLRB9 Mus muscu... 664 0,0 AA062330, AA062330 ml35e10.rl Stratagene mouse testis (#93730... 589 e-167 AI048164, AI048164 ud71b09.y1 Sugano mouse liver mlia Mus mus... 537 e-151 W08037, W08037 mb37h01.r1 Soares mouse p3NMF19.5 Mus musculus... 462 e-128 AA387311, AA387311 vc19a03.r1 Ko mouse embryo 11 5dpc Mus mus... 264 6e-69 AA163072, AA163072 ms31a11.r1 Stratagene mouse skin (#937313)... 212 2e-53 AA596763, AA596763 vm60a10.r1 Stratagene mouse Tcell 937311 M... 178 3e-43 AA562549, AA562549 vl63a11.rl Knowles Solter mouse blastocyst... 143 2e-32 AA212378, AA212378 mu44c03.r1 Soares 2NbMT Mus musculus cDNA ... 113 1e-23 AA450862, AA450862 vg55h12.r1 Beddington mouse embryonic regi... 111 5e-23 AA990073, AA990073 ua59a01.rl Soares 2NbMT Mus musculus cDNA ... 86 3e-15 AA921175, AA921175 vy54b10.rl Stratagene mouse lung 937302 Mu... 78 8e-13 AA261119, AA261119 mz89e01.rl Soares mouse NML Mus musculus c... 38 0.65 AI005952, AI005952 ua80f06.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.6 AA123274, AA123274 mn23a08.rl Beddington mouse embryonic regi... 36 2.6 AI036828, AI036828 vw96c02.r1 Stratagene mouse skin (#937313)... 36 2.6

H35787, H35787 EST109178 Rat PC-12 cells, NGF-treated (9 days... 105 3e-21 AA686082, AA686082 EST109179 Rat PC-12 cells, NGF-treated (9 ... 86 3e-15 C23464, C23464 Jpanese flounder liver cDNA, LE5(10) 72 4e-11 C23465, C23465 Jpanese flounder liver cDNA, LE5(10) 56 2e-06 AA520314, AA520314 TgESTzz38h12.r1 TgME49 invivo Bradyzoite c... 38 0.57 AA520085, AA520085 TgESTzz37g05.r1 TgME49 invivo Bradyzoite c... 38 0.57 AA520033, AA520033 TgESTzz36f10.r1 TgME49 invivo Bradyzoite c... 38 0.57 AA012516, AA012516 TgESTzz23f04.rl TgME49cDNA Toxoplasma gond... 38 0.57 AA274286, AA274286 TgESTzz24c01.s1 TgME49 invivo Bradyzoite c... 38 0.57 AA660585, AA660585 00471 MtRHE Medicago truncatula cDNA 5' si... 38 0.57 L35828, BNAESTBD Brassica rapa (clone F0621) expressed sequen... 38 0.57 AA520070, AA520070 TgESTzz37e05.rl TgME49 invivo Bradyzoite c... 38 0.57 C30080, C30080 C.elegans cDNA clone vk236c3: 3' end, single... 36 2.3 C39044, C39044 C.elegans cDNA clone vk505a4: 3' end, single... 36 2.3 C55023, C55023 C.elegans cDNA clone yk422a3: 3' end, single... 36 2.3 AA542589, AA542589 fa08d06.s1 Zebrafish ICRFzfls Danio rerio ... 36 2.3 N25370, N25370 EST000480 Schistosoma mansoni cDNA clone SMTBA... 36 2.3 AA820625, AA820625 LD24443.5prime LD Drosophila melanogaster ... 36 2.3 AA494922, AA494922 fa12g10.r1 Zebrafish ICRFzfls Danio rerio ... 36 2.3 AA495181, AA495181 fa04d06.s1 Zebrafish ICRFzfls Danio rerio ... 36 2.3 D73287, CELK116G6R C.elegans cDNA clone yk116g6: 3' end, si... 36 2.3 C28238, C28238 Rice cDNA, partial sequence (C60429 1A) 36 2.3

SEO ID NO:557

AF039693, AF039693 Homo sapiens unknown protein mRNA, complet... 948 0.0 S51239, S51239 calreticulin [Aplysia californica=marine snail... 56 1e-05 Z74035, CEF47G9 Caenorhabditis elegans cosmid F47G9, complet... 46 0.012 U25723, CPU25723 Cavia porcellus alpha-2B adrenoceptor gene, ... 44 0.047 AL021407, HS13D10 Homo sapiens DNA sequence from PAC 13D10 o... 42 0.19 U67572, U67572 Methanococcus jannaschii section 114 of 150 of... 42 0.19 V01470, ZMZE01 Zea mays gene encoding a zein gene (clone lam... 42 0.19 U06631, HSU06631 Human (H326) mRNA, complete cds. 42 0.19 X82638, CSCYTOX C.sordelii cytotoxin gene 42 0.19 AE000926, AE000926 Methanobacterium thermoautotrophicum from ... 42 0.19 AC004135, AC004135 Genomic sequence for Arabidopsis thaliana ... 42 0.19 AC003010, HUAC003010 Homo sapiens Chromosome 16 BAC clone CIT... 40 0.74 AF050157, MMHC135G15 Mus musculus major histocompatibility lo... 40 0.74 AC002352, AC002352 Homo sapiens 12q24 PAC P256D10 complete se... 40 0.74 X07699, MMNUCLEO Mouse nucleolin gene 40 0.74 X02399, MMHOM6 Mouse embryonal carcinoma DNA fragment contai... 40 0.74 M93661, RATNOTCHX Rat notch 2 mRNA. 40 0.74 M17440, MUSMHC4H2S Mouse MHC (H-2) S region complement compon... 40 0.74 U15972, MMU15972 Mus musculus homeobox (Hoxa7) gene, complete... 40 0.74 AB001601, AB001601 Homo sapiens DBP2 mRNA for ATP-dependent ... 40 0.74 U09820, HSU09820 Human helicase II (RAD54L) mRNA, complete cds. AB011149, AB011149 Homo sapiens mRNA for KIAA0577 protein, c., 40 0.74 U26259, MMU26259 Mus musculus C2-H2 zinc finger protein mRNA.... L48363, MUSZFPTR Mus musculus zinc finger protein gene, compl... 40 0.74 AC003113, AC003113 Arabidopsis thaliana BAC F24O1 chromosome ... 40 0.74 D76432, D76432 Mouse mRNA for transcriptional repressor delt... 40 0.74 U72937, HSU72937 Human putative DNA dependent ATPase and heli... 40 0.74 U72915, HSATRX16 Human putative DNA dependent ATPase and heli... 40 0.74 U00995, U00995 Rattus norvegicus TA1 mRNA, complete cds. 40 0.74 Z48618, SCCHVII35 S.cerevisiae genes for RAD54, ACE1(CUP2), ... 40 0.74 U75653, HSU75653 Human zinc finger helicase (Znf-HX) mRNA, co... 40 0.74 Z72672, SCYGL150C S.cerevisiae chromosome VII reading frame ... 40 0.74 Z50109, CEC09H10 Caenorhabditis elegans cosmid C09H10, compl... 40 0.74 AF013969, AF013969 Mus musculus antigen containing epitope to... 40 0.74 M95627, HUMAAMP1X Homo sapiens angio-associated migratory cel... 40 0.74 U72936, HSU72936 Human putative DNA dependent ATPase and heli... 40 0.74 M88753, DROHTCHRPI Fruitfly heterochromatin protein-1 gene, c... 40 0.74 U76906, REU76906 Rhizobium etli FixK (fixK), FixN (fixN), mon... 40 0.74 U97085, HSXNP14 Homo sapiens X-linked nuclear protein (ATRX) ... 40 0.74 L34363, HUMNUCPRO Human X-linked nuclear protein (XNP) gene, ... 40 0.74 U72938, HSU72938 Human putative DNA dependent ATPase and heli... 40 0.74

nousege nacree

X56983, EAVATP1 E.arvense gene for catalytic 70kDa V-ATPase ... 40 0.74 U88539, MMU88539 Mus musculus chromatin structural protein ho... 40 0.74 U07704, HSU07704 Human protein kinase PITSLRE isoform PBETA21... 38 2.9 U07705, HSU07705 Human protein kinase PITSLRE isoform PBETA22... 38 2.9 AF019612, AF019612 Homo sapiens S2P mRNA, complete cds 38 2.9 U04818, HSU04818 Human protein kinase PITSLRE alpha 2-4 mRNA,... 38 2.9 AB002381, AB002381 Human mRNA for KIAA0383 gene, partial cds AB009520, AB009520 Pyrococcus horikoshii OT3 genomic DNA, 13... 38 2.9 Z83848, HS57A13 Human DNA sequence from PAC 57A13 between ma... 38 2.9 AC004592, AC004592 Homo sapiens PAC clone DJ0244J05 from 5q31... 38 2.9 L11710, ZEFZCMYC Brachydanio rerio c-myc oncoprotein mRNA, co... 38 2.9 D43920, CHKMETASE Chicken mRNA for DNA (cytosine-5-)-methylt... 38 2.9 U49056, RNU49056 Rattus norvegicus CTD-binding SR-like protei... 38 2.9 U04824, HSU04824 Human protein kinase PITSLRE alpha 2-1 mRNA,... 38 2.9 U78045, HSU78045 Human collagenase and stromelysin genes, com... 38 2.9 U04816, HSU04816 Human protein kinase PITSLRE alpha 2-2 mRNA,... 38 2.9 U04817, HSU04817 Human protein kinase PITSLRE alpha 2-3 mRNA,... 38 2.9

HUMAN ESTs

AA639190, AA639190 ns04a01.rl NCI_CGAP_Ew1 Homo sapiens cDNA ... 519 e-145 AA172199, AA172199 zo96a06.rl Stratagene ovarian cancer (#937... 513 e-144 R23642, R23642 yh35e03.r1 Homo sapiens cDNA clone 131740 5'. AA902270, AA902270 ok69e04.s1 NCI CGAP GC4 Homo sapiens cDNA ... 450 e-124 AA947303, AA947303 ok20d04.sl Soares_NSF_F8_9W_OT_PA_P_Sl Hom... 402 e-110 AA588066, AA588066 nk10d08.s1 NCI_CGAP_Co2 Homo sapiens cDNA ... 347 1e-93 AA412036, AA412036 zt68d09.s1 Soares testis NHT Homo sapiens ... 347 1e-93 AA480337, AA480337 ne33a03.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 347 1e-93 AA508745, AA508745 ni23a03.s1 NCI_CGAP_Co4 Homo sapiens cDNA ... 347 1e-93 AA172083, AA172083 zo96a06.s1 Stratagene ovarian cancer (#937... 315 4e-84 AA811913, AA811913 ob51d06.s1 NCI CGAP GCB1 Homo sapiens cDNA... 299 2e-79 AA402403, AA402403 zt68d09.rl Soares testis NHT Homo sapiens ... 299 2e-79 AA725458, AA725458 ai16g01.s1 Soares parathyroid tumor NbHPA ... 250 2e-64 R26558, R26558 yh35e02.s1 Homo sapiens cDNA clone 131738 3'. 250 2e-64 W25749, W25749 11b4 Human retina cDNA randomly primed sublibr... 103 3e-20 W27158, W27158 22h9 Human retina cDNA randomly primed sublibr... 66 6e-09 AA737681, AA737681 nw63c04.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 42 0.090 T65784, T65784 yc11f10.s1 Homo sapiens cDNA clone 80395 3' si... 42 0.090 R52021, R52021 vg84h09.r1 Homo sapiens cDNA clone 40181 5' si... 42 0.090 AA569993, AA569993 nm47h04.s1 NCI_CGAP_Br2 Homo sapiens cDNA ... 42 0.090 R50149, R50149 yj61c05.s1 Homo sapiens cDNA clone 153224 3' s... 42 0.090 R87930, R87930 yo47a11.s1 Homo sapiens cDNA clone 181052 3' s... 42 0.090 AA812204, AA812204 ob84f01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 42 0.090 AA770224, AA770224 ah82e12.s1 Soares testis NHT Homo sapiens ... 42 0.090

DOMESONS DESTRO

D29591, HUMNK752 Human keratinocyte cDNA, clone 752 40 0.36 AA324325, AA324325 EST27219 Cerebellum II Homo sapiens cDNA 5... 40 0.36 AA053063, AA053063 zl71c03.rl Stratagene colon (#937204) Homo... 40 0.36 T35539, T35539 EST86964 Homo sapiens cDNA 5' end similar to N... 40 0.36 AA974278, AA974278 oq14d03.s1 NCI CGAP GC4 Homo sapiens cDNA ... 40 0.36 W26196, W26196 22b5 Human retina cDNA randomly primed sublibr... 40 0.36 H92585, H92585 yt89c03.s1 Homo sapiens cDNA clone 231460 3'. 40 0.36 AA232334, AA232334 zr27b04.r1 Stratagene NT2 neuronal precurs... 40 0.36 N55775, N55775 J2481F Homo sapiens cDNA clone J2481 5'. 40 0.36 R98701, R98701 vr31f08.s1 Homo sapiens cDNA clone 206919 3'. 40 0.36 C14370, C14370 Human fetal brain cDNA 5'-end GEN-050F01 40 0.36 H19156, H19156 yn50c01.r1 Homo sapiens cDNA clone 171840 5'. 40 0.36 AA299557, AA299557 EST12080 Uterus tumor I Homo sapiens cDNA ... 40 0.36 W84460, W84460 zd89d12.r1 Soares fetal heart NbHH19W Homo sap... 40 0.36 T54194, T54194 ya90a02.r2 Homo sapiens cDNA clone 68906 5'. 40 0.36 AA100203, AA100203 zm16f12.r1 Stratagene pancreas (#937208) H... 38 1.4 AA993061, AA993061 ot92h08.s1 Soares total fetus Nb2HF8 9w Ho... 38 1.4 R53406, R53406 yj70d07.r1 Homo sapiens cDNA clone 154093 5' s... H99671, H99671 yx35b03.s1 Homo sapiens cDNA clone 263693 3'. 38 1.4 W03410, W03410 za07c09.r1 Soares melanocyte 2NbHM Homo sapien... 38 1.4 N35475, N35475 yy24b03.s1 Homo sapiens cDNA clone 272141 3'. 38 1.4 AA630851, AA630851 nt57f04.s1 NCI CGAP Pr3 Homo sapiens cDNA ... 38 1.4 N66458, N66458 vz41b08.s1 Homo sapiens cDNA clone 285591 3'. AA736438, AA736438 zh31b09.s1 Soares pineal gland N3HPG Homo ... 38 1.4 AA911761, AA911761 og19b01.s1 NCI CGAP PNS1 Homo sapiens cDNA... 38 1.4 AA085513, AA085513 zn43a10.r1 Stratagene HeLa cell s3 937216 ... 38 1.4 AA678530, AA678530 ah02e05.s1 Gessler Wilms tumor Homo sapien... 38 1.4 AA782011, AA782011 ai75b12.s1 Soares testis NHT Homo sapiens ... 38 1.4 F12352, HSC38H091 H. sapiens partial cDNA sequence; clone c-... 38 1.4 AA861288, AA861288 ak33g01.s1 Soares testis NHT Homo sapiens ... 38 1.4 AA908705, AA908705 o101b09.s1 NCI CGAP Lu5 Homo sapiens cDNA ... 38 1.4

AA237204, AA237204 mx18d02.rl Soares mouse NML Mus musculus c... 172 1e-41 AI047347, AI047347 ud65c01.yl Sugano mouse liver mlia Mus mus... 42 0.032 AA832736, AA832736 vw45g10.rl Soares mouse mammary gland NbML ... 42 0.032 AA960471, AA960471 vw63a05.sl Soares mouse mammary gland NMLM... 40 0.13 AA80584, AA880584 vw92e01.rl Stratagene mouse skin (#937313)... 40 0.13 AA107508, AA107508 mp05e07.rl Life Tech mouse embryo 8 5dpc 1... 40 0.13 AA116682, AA116682 mrn28e06.rl Beddington mouse embryonic regi... 40 0.13 AA522310, AA522310 vi45b02.rl Beddington mouse embryonic regi... 40 0.13 AA162231, AA162231 mrd4h02.rl Beddington mouse embryonic regi... 40 0.13

AA298850, AA298850 EST114450 Thyroid Homo sapiens cDNA 5' end

AA414037, AA414037 vc68g03.s1 Knowles Solter mouse 2 cell Mus... 40 0.13 AA596585, AA596585 vm58e12.rl Stratagene mouse Tcell 937311 M... 38 0.51 AA863563, AA863563 vx05a10.r1 Soares 2NbMT Mus musculus cDNA ... 38 0.51 AA795177, AA795177 vq94g04.r1 Knowles Solter mouse blastocyst... 38 0.51 AA914764, AA914764 vy92h04.r1 Soares mouse mammary gland NbMM... 38 0.51 AA590440, AA590440 vm20c04.rl Knowles Solter mouse blastocyst... 38 0.51 AA563402, AA563402 vl75d08.r1 Knowles Solter mouse biastocyst... 38 0.51 AA260352, AA260352 va93c10.r1 Soares mouse 3NME12 5 Mus muscu... 38 0.51 AA444734, AA444734 ve75d10.r1 Soares mouse mammary gland NbMM... 38 0.51 C85885, C85885 Mus musculus fertilized egg cDNA 3'-end seque... 38 0.51 AA794590, AA794590 vu78h12.rl Stratagene mouse skin (#937313)... 38 0.51 AA529643, AA529643 vi38a09.rl Beddington mouse embryonic regi... 38 0.51 AA607084, AA607084 vm84a09.r1 Knowles Solter mouse blastocyst... 38 0.51 AA636994, AA636994 vn05g06.rl Knowles Solter mouse blastocyst... 38 0.51 AA675676, AA675676 vr73h08.s1 Knowles Solter mouse 2 cell Mus... 38 0.51 AA163890, AA163890 ms52f09.rl Life Tech mouse embryo 13 5dpc ... 38 0.51 C80539, C80539 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 38 0.51 AA051352, AA051352 mj53a09.rl Soares mouse embryo NbME13.5 14... 38 0.51 W36885, W36885 mb64f09.r1 Soares mouse p3NMF19.5 Mus musculus... 38 0.51 AA930627, AA930627 vy67c05.rl Stratagene mouse macrophage (#9... 38 0.51 AA244639, AA244639 mx02g12.r1 Soares mouse NML Mus musculus c... 36 2.0 AA967267, AA967267 vz70e08.r1 Soares mouse mammary gland NbMM... 36 2.0 AI048938, AI048938 uc84h06.y1 Sugano mouse kidney mkia Mus mu... 36 2.0 AA162722, AA162722 mn42b07.r1 Beddington mouse embryonic regi... 36 2.0 AA170036, AA170036 ms52d01.rl Life Tech mouse embryo 13 5dpc ... 36 2.0 AA511382, AA511382 vg14b04.r1 Soares mouse NbMH Mus musculus ... 36 2.0 AA555634, AA555634 vk49f08.r1 Stratagene mouse Tcell 937311 M... 36 2.0 AA212823, AA212823 mw81c07.r1 Soares mouse NML Mus musculus c... 36 2.0 AA606813, AA606813 vm90h12.rl Knowles Solter mouse blastocyst... 36 2.0 AA591610, AA591610 vk49d08.rl Stratagene mouse Tcell 937311 M... 36 2.0 AA987039, AA987039 uc74e05.x1 Sugano mouse liver mlia Mus mus... 36 2.0 AA105882, AA105882 ml84h07.r1 Stratagene mouse kidney (#93731... 36 2.0 AA451370, AA451370 vf84h02.rl Soares mouse mammary gland NbMM... 36 2.0 AA612185, AA612185 vo03d05.r1 Stratagene mouse skin (#937313)... 36 2.0 AA103424, AA103424 mo21e05.rl Life Tech mouse embryo 13 5dpc ... 36 2.0 AA145817, AA145817 mq68a12.r1 Soares 2NbMT Mus musculus cDNA ... 36 2.0 AA272905, AA272905 va39d01.rl Soares mouse 3NME12 5 Mus muscu... 36 2.0 AA237313, AA237313 mx17b11.r1 Soares mouse NML Mus musculus c... 36 2.0 AA267119, AA267119 mz74d07.r1 Soares mouse lymph node NbMLN M... 36 2.0 AA106683, AA106683 ml83h06.r1 Stratagene mouse kidney (#93731... 36 2.0 AA125061, AA125061 mq83d10.r1 Stratagene mouse melanoma (#937... 36 2.0 AA655241, AA655241 vq84c07.s1 Knowles Solter mouse 2 cell Mus... 36 2.0 AA512835, AA512835 vg13f11.r1 Soares mouse NbMH Mus musculus ... 36 2.0

C70525, C70525 C.elegans cDNA clone vk409g6; 5' end. single... 44 0.007 F15112, SSO4D09 S.scrofa mRNA; expressed sequence tag (5'; c... 42 0.029 AA684640, AA684640 EST104989 Rat PC-12 cells, untreated Rattu... 40 0.11 H32045, H32045 EST106774 Rat PC-12 cells, untreated Rattus sp... 40 0.11 AA660422, AA660422 00298 MtRHE Medicago truncatula cDNA 5' 40 0.11 C59696, C59696 C.elegans cDNA clone yk440e1: 3' end, single... 38 0.45 AI008699, AI008699 EST203150 Normalized rat embryo, Bento Soa... 38 0.45 AA753263, AA753263 96BS0294 Rice Immature Seed Lambda ZAPII c... 38 0.45 T38461, T38461 EST103957 Saccharomyces cerevisiae cDNA 3' end. 38 0.45 C59257, C59257 C.elegans cDNA clone yk386b12: 3' end, singl... 38 0.45 AA948906, AA948906 LD27590.5prime LD Drosophila melanogaster ... 38 0.45 AI001628, AI001628 EST0210 Tilapia brain cDNA library in pUC1... 38 0.45 H31962, H31962 EST106545 Rat PC-12 cells, untreated Rattus sp... 38 0.45 AA979509, AA979509 LD34118.5prime LD Drosophila melanogaster ... 38 0.45 D41274, RICS3647A Rice cDNA, partial sequence (S3647 1A). 38 0.45 C58362, C58362 C.elegans cDNA clone vk366a8 : 3' end, single... 38 0.45 C57756, C57756 C.elegans cDNA clone yk298b9 : 3' end, single... 38 0.45 AA753070, AA753070 97AS2091 Rice Immature Seed Lambda ZAPII c... 38 0.45 H74687, H74687 383 Brassica napus cDNA clone R25R. 38 0.45 C10513, C10513 C.elegans cDNA clone yk147e9: 3' end, single... 38 0.45 C55569, C55569, C.elegans cDNA clone vk191d1; 3' end, single... 38, 0.45 C94819, C94819 Sus scrofa mRNA; expressed sequence tag (5'; ... 38 0.45 C32982, C32982 C.elegans cDNA clone vk338a12 : 3' end, singl... 38 0.45 AA816691, AA816691 LD03795,5prime LD Drosophila melanogaster ... 36 1.8 AA519844, AA519844 TgESTzz36c03.rl TgME49 invivo Bradyzoite c... 36 1.8 AA531839, AA531839 TgESTzz47h05.r1 TgME49 invivo Bradyzoite c... 36 1.8 AA660182, AA660182 00022 MtRHE Medicago truncatula cDNA 5' si... 36 1.8 D71983, CELK084H2R C.elegans cDNA clone yk84h2: 3' end, sin... 36 1.8 R29905, R29905 12510 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 36 1.8 AA519997, AA519997 TgESTzz36h03.rl TgME49 invivo Bradyzoite c... 36 1.8 U83048, BTU83048 Bos taurus clone 0429 mRNA sequence 36 1.8 AA440655, AA440655 LD15510.5prime LD Drosophila melanogaster ... 36 1.8 AA559374, AA559374 MU002092.NH3 York-Harrop-lung-A Schistosom... 36 1.8 C93857, C93857 Dictyostelium discoideum slug cDNA, clone SSL794 36 1.8 AA520901, AA520901 TgESTzz65a05.r1 TgME49 invivo Bradyzoite c... 36 1.8 T46158, T46158 9421 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8 AA520866, AA520866 TgESTzz68e05.rl TgME49 invivo Bradyzoite c... 36 1.8 Z17562, ATTS0136 A, thaliana transcribed sequence; clone TAT... 36 1.8 AA520811, AA520811 TgESTzz64d05.r1 TgME49 invivo Bradyzoite c... 36 1.8 AA567455, AA567455 HL01288.5prime HL Drosophila melanogaster ... 36 1.8 AA519228, AA519228 TgESTzz39h02.s1 TgME49 invivo Bradyzoite c... 36 1.8 AA531917, AA531917 TgESTzz48f01.rl TgME49 invivo Bradyzoite c... 36 1.8 AA519829, AA519829 TgESTzz36a02.rl TgME49 invivo Bradyzoite c... 36 1.8 AA520185, AA520185 TgESTzz39d03.s1 TgME49 invivo Bradyzoite c... 36 1.8 C37095, C37095 C.elegans cDNA clone yk482c11 : 3' end, singl... 36 1.8

19452929 TEOZOC

T46009, T46009 9272 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8 T20458, T20458 2466 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8 F14402, ATTS5324 A. thaliana transcribed sequence; clone TAP... 36 1.8 T20404, T20404 2412 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.8 AA274295, AA274295 TgESTzz24c11.s1 TgME49 invivo Bradyzoite c... 36 1.8 AA699152, AA699152 HL07807.5prime HL Drosophila melanogaster ... 36 1.8 AA902065, AA902065 NCMIA12T3 Mycelial Neurospora crassa cDNA ... 36 1.8

SEQ ID NO:558

AF016585, AF016585 Streptomyces caelestis cytochrome P-450 hy... 42 0.092
U50719, MSUS0719 Manduca sexta neuroglian mRNA, complete cds
297208, SPAC15A10 S.pombe chromosome I cosmid c15A10 40 0.36
AC003063, AC003063 Mus musculus Chromosome 16 BAC Clone b40-o... 40 0.36
X66455, MMFGFR2 M.musculus promoter region of fibroblast gro... 40 0.36
D83785, D83785 Human mRNA for KIAA0200 gene, complete cds
AC000398, AC000398 Genomic sequence from Mouse 11, complete s... 38 1.4
AF062345, AF062345 Caulobacter crescentus Sts1 (sts1), S-laye... 38 1.4
X12359, RCNIFR12 Rhodobacter capsulatus nifR1 and nifR2 gene
X72382, RCNIFR3 R.capsulatus nifR3 DNA 38 1.4

HUMAN ESTs

R36714, R36714 yh93g06.s1 Homo sapiens cDNA clone 137338 3'. 775 0.0 D61030, HUM149A04B Human fetal brain cDNA 5'-end GEN-149A04. 666 0.0 D60944, HUM141D02B Human fetal brain cDNA 5'-end GEN-141D02. 656 0.0 H03308, H03308 yj47d09.s1 Homo sapiens cDNA clone 151889 3'. 609 e-172 AA435561, AA435561 zt73d09.s1 Soares testis NHT Homo sapiens ... 587 e-166 AA977877, AA977877 oq56d03.s1 NCI_CGAP Kid5 Homo sapiens cDNA... 571 e-161 AA846787, AA846787 aj41h03.s1 Soares testis NHT Homo sapiens ... 563 e-159 AA972542, AA972542 oo82e01.s1 NCI CGAP Kid5 Homo sapiens cDNA... 561 e-158 AA954270, AA954270 on72e06.s1 Soares_NFL_T_GBC_S1 Homo sapien... 557 e-157 AA740333, AA740333 ob23c02.s1 NCI CGAP Kid5 Homo sapiens cDNA... 557 e-157 AA999722, AA999722 ov04c06.s1 NCI_CGAP_Kid3 Homo sapiens cDNA... 555 e-156 AA970621, AA970621 op40h08.s1 Soares_NFL_T_GBC_S1 Homo sapien... 551 e-155 AA932930, AA932930 0004g11.s1 Soares_NFL_T_GBC_S1 Homo sapien... 541 e-152 AA725406, AA725406 ai13b11.s1 Soares parathyroid tumor NbHPA ... 539 e-152 W74439, W74439 zd75d10.s1 Soares fetal heart NbHH19W Homo sap... 539 e-152 AA868538, AA868538 ak43e08.s1 Soares testis NHT Homo sapiens ... 539 e-152 R79832, R79832 yi89b08.s1 Homo sapiens cDNA clone 146391 3' s... 537 e-151

R63227, R63227 yi07e06.s1 Homo sapiens cDNA clone 138562 3'. AI027967, AI027967 ov84d04.x1 Soares testis NHT Homo sapiens ... 535 e-150 AA776717, AA776717 ah49d07.s1 Soares testis NHT Homo sapiens ... 535 e-150 AI040961, AI040961 ov53d06.x1 Soares_testis_NHT Homo sapiens ... 533 e-150 AI024835, AI024835 ov35h09.x1 Soares testis NHT Homo sapiens ... 533 e-150 AA740667, AA740667 ob01g12.s1 NCI_CGAP_Kid3 Homo sapiens cDNA... 531 e-149 AA994527, AA994527 ou42h06.s1 Soares_NFL_T_GBC_S1 Homo sapien... 531 e-149 AA932728, AA932728 oo31g06.s1 NCI CGAP Lu5 Homo sapiens cDNA ... 529 e-149 AI001978, AI001978 ot39f03.s1 Soares testis NHT Homo sapiens ... 529 e-149 N37092, N37092 vv41g08.s1 Homo sapiens cDNA clone 273854 3'. 529 e-149 N27547, N27547 yy01e05.s1 Homo sapiens cDNA clone 269984 3'. 527 e-148 AA883578, AA883578 al46b08.s1 Soares NFL T GBC S1 Homo sapien... 527 e-148 AA890154, AA890154 al53f07.s1 Soares NFL T GBC S1 Homo sapien... 525 e-147 AA757222, AA757222 ah56f11.s1 Soares testis NHT Homo sapiens ... 525 e-147 AA456074, AA456074 aa17b07.s1 Soares NhHMPu S1 Homo sapiens c... 523 e-147 AA884285, AA884285 am32f04.s1 Soares NFL T GBC S1 Homo sapien... 523 e-147 AA969436, AA969436 op53e12.s1 Soares NFL T GBC S1 Homo sapien... 521 e-146 AA952918, AA952918 on55h11.s1 Soares_NFL T GBC S1 Homo sapien... 521 e-146 AA971938, AA971938 op88b01.sl Soares NFL T GBC S1 Homo sapien... 521 e-146 R25112, R25112 yh36b12.s1 Homo sapiens cDNA clone 131807 3'. 519 e-146 AA865258, AA865258 og87d08.s1 NCI CGAP Kid5 Homo sapiens cDNA... 519 e-146 AA758323, AA758323 ah65e11.s1 Soares testis NHT Homo sapiens ... 519 e-146 AA972041, AA972041 op88e06.sl Soares NFL T GBC SI Homo sapien... 519 e-146 R76443, R76443 vi58e11.s1 Homo sapiens cDNA clone 143468 3'. AA917965, AA917965 om37e04.sl Soares NFL T GBC S1 Homo sapien... 517 e-145 AA505880, AA505880 ni01a09.s1 NCI CGAP Br2 Homo sapiens cDNA ... 517 e-145 AA906270, AA906270 oj98e12.sl Soares NFL T GBC S1 Homo sapien... 517 e-145 AA758549, AA758549 ah70b04.s1 Soares testis NHT Homo sapiens ... 517 e-145 AA927156, AA927156 om20f05.s1 Soares NFL T GBC S1 Homo sapien... 515 e-144 AA976254, AA976254 oo30f08.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 515 e-144 R23891, R23891 yh28a12.s1 Homo sapiens cDNA clone 131038 3'. 515 e-144 AA938552, AA938552 oo78g11.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 513 e-144 AA483809, AA483809 ne41c08.sl NCI CGAP Co3 Homo sapiens cDNA ... 513 e-144 AA962659, AA962659 or31f10.s1 NCI CGAP GC3 Homo sapiens cDNA ... 511 e-143 AA724803, AA724803 ai05f02.s1 Soares parathyroid tumor NbHPA ... 511 e-143 AA410432, AA410432 zv12c09.s1 Soares NhHMPu S1 Homo sapiens c... 511 e-143 AA775373, AA775373 ad19c07.s1 Soares NbHFB Homo sapiens cDNA ... 511 e-143 AA758038, AA758038 ah67h09.s1 Soares testis NHT Homo sapiens ... 509 e-143 AA904368, AA904368 ol15d02.sl Soares NFL T GBC S1 Homo sapien... 509 e-143 AA861386, AA861386 ak37b11.s1 Soares testis NHT Homo sapiens ... 507 e-142 R31547, R31547 vh72g03.s1 Homo sapiens cDNA clone 135316 3'. AA843421, AA843421 ak07f11.s1 Soares parathyroid tumor NbHPA ... 504 e-141 H02479, H02479 yj35e10.s1 Homo sapiens cDNA clone 150762 3'. 504 e-141 N29346, N29346 yw85c12.s1 Homo sapiens cDNA clone 259030 3'. 504 e-141 AA815351, AA815351 ai63g05.s1 Soares testis NHT Homo sapiens ... 504 e-141

AA923373, AA923373 ol46e03.sl Soares NFL T GBC Sl Homo sapien... 502 e-140 H01218, H01218 yj31c08.s1 Homo sapiens cDNA clone 150350 3'. 500 e-140 AA988977, AA988977 or87e11.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 500 e-140 AA628621, AA628621 af40c02.s1 Soares total fetus Nb2HF8 9w Ho... 500 e-140 AA442745, AA442745 zv60a07.s1 Soares testis NHT Homo sapiens ... 498 e-139 AA777492, AA777492 zj02e07.s1 Soares fetal liver spleen 1NFLS... 498 e-139 R73670, R73670 yi55f03.s1 Homo sapiens cDNA clone 143165 3'. 498 e-139 H12460, H12460 yj12d05.sl Homo sapiens cDNA clone 148521 3'. 498 e-139 AA875917, AA875917 oj15a08.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 496 e-138 R76230, R76230 yi71g11.s1 Homo sapiens cDNA clone 144740 3'. 494 e-138 AA970616, AA970616 op40h03.sl Soares_NFL_T GBC_Sl Homo sapien... 494 e-138 AA912408, AA912408 ol23a05.s1 Soares_NFL_T_GBC_S1 Homo sapien... 492 e-137 AA910051, AA910051 ol40e08.s1 Soares_NFL_T_GBC_S1 Homo sapien... 492 e-137 AA815444, AA815444 ai65b11.s1 Soares testis NHT Homo sapiens ... 492 e-137 R76814, R76814 yi62f06.s1 Homo sapiens cDNA clone 143843 3'. AA954722, AA954722 0084c12.s1 NCI_CGAP_Kid5 Homo sapiens cDNA... 488 e-136 R65987, R65987 yi23e10.s1 Homo sapiens cDNA clone 140106 3'. 486 e-136 R63480, R63480 yi08e11.s1 Homo sapiens cDNA clone 138668 3'. 486 e-136 AA885425, AA885425 am12h09.s1 Soares NFL T GBC S1 Homo sapien... 486 e-136 AA884231, AA884231 am32a01.sl Soares NFL T GBC S1 Homo sapien... 484 e-135 AA885048, AA885048 am11a12.s1 Soares NFL T GBC S1 Homo sapien... 482 e-134 AA996162, AA996162 os14f10.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 482 e-134 AA748637, AA748637 ny10a02.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 482 e-134 AI031908, AI031908 ow47e12.x1 Soares_parathyroid_tumor_NbHPA ... 482 e-134 AA884703, AA884703 am18e02.s1 Soares NFL T GBC S1 Homo sapien... 480 e-134 AA928243, AA928243 on87c10.s1 Soares_NFL_T_GBC_S1 Homo sapien... 480 e-134 AI025986, AI025986 ow03a09.s1 Soares_parathyroid tumor NbHPA ... 478 e-133 AA897637, AA897637 oj72g07.s1 Soares_NFL T GBC_S1 Homo sapien... 472 e-131 AA877346, AA877346 01c07.s1 NCI_CGAP_Co10 Homo sapiens cDNA... 472 e-131 AA833569, AA833569 aj46b02.s1 Soares testis NHT Homo sapiens ... 472 e-131 AA832163, AA832163 oc91b02.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 470 e-131 R89052, R89052 ym99e08.s1 Homo sapiens cDNA clone 167078 3'. 470 e-131 N26589, N26589 yx91f03.s1 Homo sapiens cDNA clone 269117 3'. 460 e-128 R73883, R73883 yi56c03.s1 Homo sapiens cDNA clone 143236 3'. 454 e-126 AA579968, AA579968 ng51c03.sl NCI CGAP Co3 Homo sapiens cDNA ... 444 e-123 AA843427, AA843427 ak07g06.s1 Soares parathyroid tumor NbHPA ... 438 e-121 AA705903, AA705903 ah42g12.s1 Soares testis NHT Homo sapiens ... 436 e-121 AA835882, AA835882 oc81d05.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 434 e-120 AA812583, AA812583 aj43b02.s1 Soares testis NHT Homo sapiens ... 432 e-119 AA512970, AA512970 nj16b08.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 432 e-119 R26664, R26664 yh35g10.s1 Homo sapiens cDNA clone 131778 3'. AA429715, AA429715 zv60a07.rl Soares testis NHT Homo sapiens ... 414 e-114 H17430, H17430 ym40f09.s1 Homo sapiens cDNA clone 50607 3'. AA436117, AA436117 zu03d10.r1 Soares testis NHT Homo sapiens ... 402 e-110 AA099077, AA099077 zl77a09.s1 Stratagene colon (#937204) Homo... 400 e-110

R72440, R72440 yj90h02.s1 Homo sapiens cDNA clone 156051 3'. AA577436, AA577436 nm96h06.sl NCI CGAP Co9 Homo sapiens cDNA ... 351 4e-95 AA516390, AA516390 nf55e03.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 347 6e-94 AA534533, AA534533 nf80h06.sl NCI_CGAP_Co3 Homo sapiens cDNA ... 341 3e-92 AA541583, AA541583 ni89f05.sl NCI CGAP Pr21 Homo sapiens cDNA... 311 3e-83 N72191, N72191 yz99f07.s1 Homo sapiens cDNA clone 291205 3'. 303 8e-81 AA905015, AA905015 ok09b08.s1 Soares_NFL_T_GBC S1 Homo sapien... 303 8e-81 AA393148, AA393148 zt73d09.rl Soares testis NHT Homo sapiens ... 287 4e-76 AA939048, AA939048 op56h04.s1 Soares_NFL_T_GBC_S1 Homo sapien... 256 2e-66 AA412317, AA412317 zt97c05.r1 Soares testis NHT Homo sapiens ... 246 2e-63 R65986, R65986 yi23e10.rl Homo sapiens cDNA clone 140106 5'. 238 4e-61 AA400827, AA400827 zt76c07.s1 Soares testis NHT Homo sapiens ... 232 2e-59 W00472, W00472 yz99f07.rl Homo sapiens cDNA clone 291205 5'. 180 8e-44 AA860558, AA860558 aj81e09.s1 Soares parathyroid tumor NbHPA ... 180 8e-44 AA455577, AA455577 aa17b07.rl Soares NhHMPu S1 Homo sapiens c... 176 1e-42 AA583931, AA583931 nn64e04.s1 NCI CGAP Larl Homo sapiens cDNA... 172 2e-41 AA907332, AA907332 ol22g11.sl Soares NFL T GBC S1 Homo sapien... 168 3e-40 R71169, R71169 vi53a12.rl Homo sapiens cDNA clone 142942 5'. 159 3e-37 W79084, W79084 zd75d10.r1 Soares fetal heart NbHH19W Homo sap... 155 4e-36 AA295914, AA295914 EST101137 Thymus III Homo sapiens cDNA 5' end 135 4e-30 AA860415, AA860415 ai60d10.s1 Soares testis NHT Homo sapiens ... 100 2e-19 H01351, H01351 yi99a07.rl Homo sapiens cDNA clone 147348 5'. 98 9e-19 AA709286, AA709286 ai21g07.s1 Soares testis NHT Homo sapiens ... 96 3e-18 AA931370, AA931370 0003d01.sl Soares NFL T GBC S1 Homo sapien... 96 3e-18 AA501911, AA501911 ng54a08.s1 NCI CGAP Li2 Homo sapiens cDNA ... 94 1e-17 AA548419, AA548419 nj14g09.s1 NCI CGAP Pr22 Homo sapiens cDNA... 92 5e-17 AA588892, AA588892 no23b06.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 92 5e-17 AI025228, AI025228 ov40h08.x1 Soares testis NHT Homo sapiens ... 76 3e-12 R73757, R73757 yi55f03.r1 Homo sapiens cDNA clone 143165 5'. 74 1e-11 R23710, R23710 yh35g10.rl Homo sapiens cDNA clone 131778 5'. 56 3e-06 N40362, N40362 yy01e05.rl Homo sapiens cDNA clone 269984 5'. 50 2e-04 H59895, H59895 vr04c12.rl Homo sapiens cDNA clone 204310 5'. 48 7e-04 H12509, H12509 yi12d05.rl Homo sapiens cDNA clone 148521 5'. 44 0.011 N20344, N20344 yx38d02.s1 Homo sapiens cDNA clone 264003 3'. 38 0.70 AA614692, AA614692 np52b10.s1 NCI CGAP Br1.1 Homo sapiens cDN... 38 0.70 H30707, H30707 yo78f07.rl Homo sapiens cDNA clone 184069 5'. 36 2.7 H52973, H52973 yq82e04.rl Homo sapiens cDNA clone 202302 5'. 36 2.7 AA218550, AA218550 zq96b02.rl Stratagene NT2 neuronal precurs... 36 2.7 AA312481, AA312481 EST183215 Jurkat T-cells VI Homo sapiens c... 36 2.7 AA632009, AA632009 np74c07.s1 NCI CGAP Br2 Homo sapiens cDNA ... 36 2.7 H13363, H13363 yl71b10.rl Homo sapiens cDNA clone 43343 5'. 36 2.7 AI022018, AI022018 ow64d01.x1 Soares senescent fibroblasts Nb... AA781996, AA781996 ai75a06.s1 Soares testis NHT Homo sapiens ... 36 2.7 N21623, N21623 yx60a09.s1 Homo sapiens cDNA clone 266104 3'. 36 2.7 AA326194, AA326194 EST29340 Cerebellum II Homo sapiens cDNA 5... 36 2.7

C76071, C76071 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s 250 4e-65
AA051612, AA051612 mj52c07.rl Soares mouse embryo NbME13.5 14 238 1e-61
AA561635, AA561635 vl01h07.r1 Knowles Solter mouse blastocyst 234 2e-60
AA288419, AA288419 vb14h01.rl Soares mouse NML Mus musculus c 220 3e-56
AA212883, AA212883 mw78e10.rl Soares mouse NML Mus musculus c 220 3e-56
AA268018, AA268018 vb08e07.r1 Soares mouse NML Mus musculus c 212 8e-54
AA692427, AA692427 vt59b07.r1 Barstead mouse irradiated colon 200 3e-50
W18566, W18566 mb98h02.r1 Soares mouse p3NMF19.5 Mus musculus 192 7e-48
AA543948, AA543948 vj69b08.rl Knowles Solter mouse blastocyst 147 4e-34
W41070, W41070 mc39b06.r1 Soares mouse p3NMF19.5 Mus musculus 123 5e-27
Z31174, MMTEST52 M.musculus expressed sequence tag MTEST52 117 3e-25
AA530723, AA530723 vj32f07.rl Stratagene mouse diaphragm (#93 74 5e-12
AA966940, AA966940 ua38c01.rl Soares mouse mammary gland NbMM 72 2e-11
AA111079, AA111079 mp50e01.rl Barstead MPLRB1 Mus musculus cD 44 0.004
AA049187, AA049187 mj51a02.r1 Soares mouse embryo NbME13.5 14 36 0.99
AA058246, AA058246 mg74e12.rl Soares mouse embryo NbME13.5 14 36 0.99
AA153730, AA153730 mq60a02.r1 Soares 2NbMT Mus musculus cDNA 36 0.99
AA473959, AA473959 vd02b12.s1 Knowles Solter mouse 2 cell Mus 36 0.99
W47887, W47887 mc83h09.r1 Soares mouse embryo NbME13.5 14.5 M 36 0.99
AA033312, AA033312 mi43g01.rl Soares mouse embryo NbME13.5 14 36 0.99
AA980820, AA980820 ua46a04.rl Soares mouse mammary gland NbMM 36 0.99
Z31139, MMTEST427 M.musculus expressed sequence tag MTEST427 36 0.99
C76637, C76637 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s 34 3.9
AI049314, AI049314 uc87b10.y1 Sugano mouse kidney mkia Mus mu 34 3.9
AA670807, AA670807 vs70b02.rl Stratagene mouse skin (#937313) 34 3.9
AA727571, AA727571 vv01h11.r1 Stratagene mouse skin (#937313) 34 3.9
AA571966, AA571966 vg12f07.r1 Soares mouse NbMH Mus musculus 34 3.9
W37059, W37059 mb73f10.rl Soares mouse p3NMF19.5 Mus musculus 34 3.9
AA760280, AA760280 vv74h11.rl Stratagene mouse skin (#937313) 34 3.9
AA799036, AA799036 vn40c12.rl Stratagene mouse skin (#937313) 34 3.9
AA432831, AA432831 vf28g07.rl Knowles Solter mouse 8 cell Mus 34 3.9
AA562435, AA562435 vk98c01.rl Knowles Solter mouse blastocyst 34 3.9
AA726680, AA726680 vu93g12.rl Stratagene mouse skin (#937313) 34 3.9
AA217464, AA217464 mu87d11.rl Soares mouse lymph node NbMLN M 34 3.9
AA790564, AA790564 vx71e06.rl Stratagene mouse skin (#937313) 34 3.9
AA033172, AA033172 mi37f06.rl Soares mouse embryo NbME13.5 14 34 3.9
AA616204, AA616204 vo96h02.r1 Soares mouse mammary gland NbMM 34 3.9
AA982055, AA982055 ua37h05.rl Soares mouse mammary gland NbMM 34 3.9
W47850, W47850 mc82h10.rl Soares mouse embryo NbME13.5 14.5 M 34 3.9
AA537538, AA537538 vk48c12.rl Soares mouse mammary gland NbMM 34 3.9
AA636986, AA636986 vn05f04.r1 Knowles Solter mouse blastocyst 34 3.9

A1043768, A1043768 UI-R-C0-jm-d-11-0-UI.s1 UI-R-C0 Rattus nor... 174 1e-42
AA531635, AA531635 TgESTzz29b08.r1 TgME49 invivo Bradyzoite c... 38 0.22
AA944260, AA944260 EST199759 Normalized rat embryo, Bento Soa... 38 0.22
A1008930, A1008930 EST203381 Normalized rat embryo, Bento Soa... 36 0.87
D15788, RICC1258A Rice cDNA, partial sequence (C1258A). 36 0.87
AA963741, AA963741 UI-R-C0-gt-b-09-0-UI.s1 UI-R-C0 Rattus nor... 36 0.87
AA951235, AA951235 LD31601.3prime LD Drosophila melanogaster ... 34 3.5
C20118, C20118 Rice cDNA, partial sequence (E11542_2A) 34 3.5
AA820317, AA820317 LD23876.5prime LD Drosophila melanogaster ... 34 3.5
AA950448, AA950448 LD30237.3prime LD Drosophila melanogaster ... 34 3.5

SEQ ID NO:559

U83883, RNU83883 Rattus norvegicus p105 coactivator mRNA, com... 42 0.11 V00722, MMBGL1 Mouse gene for beta-1-globin. X14061, MMBGCXD M.musculus beta-globin complex DNA for y, bh... 40 0.45 U20824, EHVU20824 Equine herpesvirus 2, complete genome U04106, PFU04106 Pleurotus fossulatus D1822, mating group VI,... 38 1.8 U04101, POU04101 Pleurotus ostreatus D1742, Japan, mating gro... 38 1.8 AC005174, AC005174 Homo sapiens clone UWGC:g1564a012 from 7p1... 38 1.8 M18680, HUMRGAPS Homo sapiens 5S rRNA pseudogene. AL022121, MTV025 Mycobacterium tuberculosis H37Ry complete g.,. 38 1.8 AF038379, AF038379 Leishmania amazonensis ribosomal protein S... 38 1.8 Z11528, THIGPMR T.harzianum mRNA for imidazoleglycerolphosphate 38 1.8 U32622, CTU32622 Comamonas testosteroni TsaR (tsaR), toluenes... 38 1.8 U04102, POU04102 Pleurotus ostreatus D1743, Japan, mating gro... 38 1.8 U04105, PFU04105 Pleurotus fossulatus D1821, mating group VI,... 38 1.8 U04109, PEU04109 Pleurotus ervngii D1832, mating group VI rib... 38 1.8 U65606, BSU65606 Basidiomycete from a bamboo (Phyllostachys p... 38 1.8

HUMAN ESTs

R49969, R49969 yij56c07.s1 Homo sapiens cDNA clone 152748 3' s... 523 e-147 AA834501, AA834501 of21c02.s1 NCI_CGAP_Kid6 Homo sapiens cDNA... 381 e-104 W96422, W96422 ze43a05.s1 Soares retina N2b4HR Homo sapiens c... 315 2e-84 R47821, R47821 yij56c07.r1 Homo sapiens cDNA clone 152748 5'. 214 7e-54 AA761660, AA761660 nz24b09.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 212 3e-53 AA887861, AA887861 nq99b07.s1 NCI_CGAP_C010 Homo sapiens cDNA... 74 2e-11 AA644044, AA644044 nm20b12.s1 NCI_CGAP_C010 Homo sapiens cDNA... 76 e-11

AA115963, AA115963 zm78d11.s1 Stratagene neuroepithelium (#93... 40 0.22 AA779271, AA779271 zj43f02.s1 Soares fetal liver spleen 1NFLS... 40 0.22 T65600, T65600 yc76a04.rl Homo sapiens cDNA clone 21496 5'. 38 0.86 AA515882, AA515882 nf67f10.s1 NCI CGAP Co3 Homo sapiens cDNA ... 38 0.86 AA664812, AA664812 nu69b05.s1 NCI CGAP Alv1 Homo sapiens cDNA... 36 3.4 T83365, T83365 ye03f05.s1 Homo sapiens cDNA clone 116673 3'. 36 3.4 AA009773, AA009773 zi04d04.s1 Soares fetal liver spleen 1NFLS... 36 3.4 AA916894, AA916894 og34g10.s1 NCI CGAP Br7 Homo sapiens cDNA ... 36 3.4 N27865, N27865 yy02g03.s1 Homo sapiens cDNA clone 270100 3'. AA953544, AA953544 om79g06.s1 NCI_CGAP_Kid3 Homo sapiens cDNA... 36 3.4 AA505576, AA505576 nh93f03.s1 NCI CGAP Br2 Homo sapiens cDNA ... 36 3.4 H30276, H30276 yp42f05.s1 Homo sapiens cDNA clone 190113 3'. AA699914, AA699914 zi61f08.s1 Soares fetal liver spleen 1NFLS... 36 3.4 AA595583, AA595583 nk92c04.s1 NCI_CGAP_Co11 Homo sapiens cDNA... 36 3.4 AA351139, AA351139 EST58769 Infant brain Homo sapiens cDNA 5'... 36 3.4 AA810167, AA810167 ob88a03.s1 NCI CGAP GCB1 Homo sapiens cDNA... 36 3.4 H50257, H50257 vo28a07.rl Homo sapiens cDNA clone 179220 5'. W19939, W19939 zb37e09.r1 Soares parathyroid tumor NbHPA Homo... 36 3.4 R19840, R19840 yg30e11.r1 Homo sapiens cDNA clone 33837 5'. AA514234, AA514234 nf56e10.s1 NCI_CGAP_Co3 Homo sapiens cDNA ... 36 3.4

AA183407, AA183407 ms AA821640, AA821640 vw AA289310, AA289310

AA900756, AA900756 UI-R-E0-di-d-04-0-UI.s1 UI-R-E0 Rattus nor... 46 0.001 T18416, T18416 6c02e0777 etiolated seedling Zea mays cDNA clo... 40 0.069 AA817427, AA817427 LD22827.5prime LD Drosophila melanogaster ... 36 1.1 AA274351, AA274351 TgESTz225c09.s1 TgME49 invivo Bradyzoite c... 36 1.1 AA391823, AA391823 LD10747.5prime LD Drosophila melanogaster ... 36 1.1 AA274275, AA274275 TgESTz224b02.s1 TgME49 invivo Bradyzoite c... 34 4.3 R86490, R86490 RABEST068T Oryctolagus cuniculus cDNA clone pR... 34 4.3 AA965817, AA965817 o5g08a1.rl Aspergillus nidulans 24hr asexu... 34 4.3

SEQ ID NO:560

X81198, L35746, L49403, U21317, Z35640, AL010273, U09850, AF071771, Z96434,

Z50028, X72735, U13072, Z34294, AB002109, X68401, M92840, D88399, Z36238, AF000262, Z46828,

HUMAN ESTs

AA215808, AA215808 zr98b10.rl NCI CGAP GCB1 Homo sapiens cDNA... 1082 0.0 N75131, N75131 vz29g07.r1 Soares multiple sclerosis 2NbHMSP H... 989 0.0 AA709149, AA709149 zf98g05.s1 Soares fetal heart NbHH19W Homo... 985 0.0 AA428341, AA428341 zw18f09.s1 Soares ovary tumor NbHOT Homo s... 967 0.0 AA043426, AA043426 zk54h09.rl Soares pregnant uterus NbHPU Ho... 870 0.0 AA878521, AA878521 oj19c01.s1 NCI CGAP Kid5 Homo sapiens cDNA... 844 0.0 AA599696, AA599696 ag10h01.s1 Gessler Wilms tumor Homo sapien... 842 0.0 W52304, W52304 zc47c08.rl Soares senescent fibroblasts NbHSF ... 841 0.0 AA043427, AA043427 zk54h09.s1 Soares pregnant uterus NbHPU Ho... 769 0.0 N64314, N64314 yz46a12.s1 Homo sapiens cDNA clone 286078 3'. 763 0.0 N52360, N52360 yz29g07.s1 Soares multiple sclerosis 2NbHMSP H... 753 0.0 AA290863, AA290863 zt19a08.s1 Soares ovary tumor NbHOT Homo s... 747 0.0 AA768023, AA768023 oa60e03.s1 NCI CGAP GCB1 Homo sapiens cDNA... 728 0.0 AA872018, AA872018 oi05f08,s1 NCI CGAP GC4 Homo sapiens cDNA ... 718 0.0 AA164765, AA164765 zp01g09.s1 Stratagene ovarian cancer (#937... 716 0.0 AA814881, AA814881 oa75e02.sl NCI CGAP GCB1 Homo sapiens cDNA... 708 0.0 R86915, R86915 vq30f07.rl Homo sapiens cDNA clone 197317 5'. W56703, W56703 zd14e01.rl Soares fetal heart NbHH19W Homo sap... 642 0.0 R84872, R84872 vq27e01.r1 Soares fetal liver spleen 1NFLS Hom... 636 0.0 D79691, HUM307D10B Human aorta cDNA 5'-end GEN-307D10. AA025638, AA025638 ze90d11.s1 Soares fetal heart NbHH19W Homo... 626 e-178 AA298883, AA298883 EST114512 Pancreas tumor I Homo sapiens cD... 624 e-177 R86903, R86903 vq30d07.r1 Homo sapiens cDNA clone 197293 5'. AA033584. AA033584 zk21b12.s1 Soares pregnant uterus NbHPU Ho... 618 e-175 AA633335, AA633335 nq58h09.s1 NCI CGAP Co9 Homo sapiens cDNA ... 611 e-173 AA298894, AA298894 EST114513 Pancreas tumor I Homo sapiens cD... 599 e-169 R85806, R85806 yq27e01.s1 Soares fetal liver spleen 1NFLS Hom... 595 e-168 AA872617, AA872617 oi05g07.s1 NCI CGAP GC4 Homo sapiens cDNA ... 591 e-167 H71458, H71458 vu71a06.s1 Homo sapiens cDNA clone 239218 3'. 587 e-166 AA291045, AA291045 zt19a08.rl Soares ovary tumor NbHOT Homo s... 563 e-159 H71587, H71587 yu71a06.rl Homo sapiens cDNA clone 239218 5'. AA035172, AA035172 zk28g05.s1 Soares pregnant uterus NbHPU Ho... 523 e-147 AA164764, AA164764 zp01g09.r1 Stratagene ovarian cancer (#937... 517 e-145 AA297001, AA297001 EST112550 Adipose tissue, white II Homo sa... 502 e-140 AA296816, AA296816 EST112381 Aorta endothelial cells Homo sap... 500 e-139 AA769090, AA769090 oa74e12.s1 NCI CGAP GCB1 Homo sapiens cDNA... 494 e-138 H54447, H54447 vg91f04.sl Homo sapiens cDNA clone 203167 3'. H54537, H54537 yq91f04.rl Homo sapiens cDNA clone 203167 5'. 436 e-120 AI049757, AI049757 an26g03.x1 Gessler Wilms tumor Homo sapien... 430 e-119

naksopp_osayna

AA033583, AA033583 zk21b12.r1 Soares pregnant uterus NbHPU Ho... 422 e-116 D61748, HUM205G02B Human aorta cDNA 5'-end GEN-205G02. AA148635, AA148635 zl26d10.rl Soares pregnant uterus NbHPU Ho... 377 e-102 AA148636, AA148636 zl26d10.s1 Soares pregnant uterus NbHPU Ho... 373 e-101 AA025637, AA025637 ze90d11.rl Soares fetal heart NbHH19W Homo... 371 e-101 AA932620, AA932620 oo61h04.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 365 4e-99 AA385594, AA385594 EST99296 Thyroid Homo sapiens cDNA 5' end AA361957, AA361957 EST71295 T-cell lymphoma Homo sapiens cDNA... 289 2e-76 AA383998, AA383998 EST97483 Thyroid Homo sapiens cDNA 5' end ... 274 1e-71 H22175, H22175 yl38a03.rl Homo sapiens cDNA clone 160492 5'. 256 3e-66 R50060, R50060 yj59c10.rl Homo sapiens cDNA clone 153042 5'. 256 3e-66 AA229414, AA229414 nc47f12.r1 NCI CGAP Pr3 Homo sapiens cDNA ... 246 3e-63 D20466, HUMGS01440 Human HL60 3'directed MboI cDNA, HUMGS014... 208 6e-52 AA249061, AA249061 114438.seq.F Human fetal heart, Lambda ZAP... 168 5e-40 R86758, R86758 yq30f07.s1 Homo sapiens cDNA clone 197317 3'. 147 2e-33 R58025, R58025 F8018 Fetal heart Homo sapiens cDNA clone F801... 101 1e-19 AA371076, AA371076 EST82846 Prostate gland I Homo sapiens cDN... 42 0.081 AA977111, AA977111 oq24c03.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 40 0.32 AA608923, AA608923 af03b04.s1 Soares testis NHT Homo sapiens ... 38 1.3

gb|AA386999|AA386999 vc81b02.r1 Ko mouse embryo 11 5dpc Mus mus... 668 0.0 gb|AA589082|AA589082 vk24a08.r1 Knowles Solter mouse blastocyst... 658 0.0 gb|AA510881|AA510881 vh59c11.rl Soares mouse mammary gland NbMM... 617 e-175 gb|AA763574|AA763574 vp07e08.r1 Soares mouse mammary gland NbMM... 615 e-174 gb|AA387423|AA387423 vc84b03.rl Ko mouse embryo 11 5dpc Mus mus... 549 e-155 gb|AA915333|AA915333 vz28f05.r1 Soares 2NbMT Mus musculus cDNA ... 543 e-153 gb|AA816208|AA816208 vp43c10.rl Barstead mouse irradiated colon... 444 e-123 gb|AA190043|AA190043 mt91h08.r1 Soares mouse lymph node NbMLN M... 424 e-117 gb|AA207393|AA207393 mv89c09.r1 GuayWoodford Beier mouse kidney... 394 e-108 emb|Z31258|MMTEST693 M.musculus expressed sequence tag MTEST693 gb|AA930143|AA930143 vz52d11.s1 Soares 2NbMT Mus musculus cDNA ... 293 5e-78 gb|AA170612|AA170612 ms92c09.r1 Soares mouse 3NbMS Mus musculus... 287 3e-76 gb|AA762238|AA762238 vw58h02.r1 Soares mouse mammary gland NMLM... 266 1e-69 gb|AA689028|AA689028 vs02c12.r1 Barstead mouse irradiated colon... 264 4e-69 gb|AA959938|AA959938 vw58h02.s1 Soares mouse mammary gland NMLM... 240 6e-62 dbj|D18511|MUSGS01569 Mouse 3'-directed cDNA, MUSGS01569, clon... 172 1e-41 gb|AA474393|AA474393 vd57g07.r1 Knowles Solter mouse blastocyst... 100 1e-19 gb|W97165|W97165 mf90g05.r1 Soares mouse embryo NbME13.5 14.5 M... 74 8e-12 gb|AA512077|AA512077 vj43f05.rl Stratagene mouse skin (#937313)... 62 3e-08 gb|AA794521|AA794521 vu68e07.r1 Stratagene mouse skin (#937313)... 54 8e-06 gb|AA155454|AA155454 mn38h12.rl Beddington mouse embryonic regi... 48 5e-04 gb|W91000|W91000 mf83f06.r1 Soares mouse embryo NbME13.5 14.5 M... 40 0.12

TOURSES OSSISIE

gb|AA219917|AA219917 mv62f05.rl Soares mouse 3NME12 5 Mus muscu... 38 0.45 gb|AA529349|AA529349 vi35f08.rl Beddington mouse embryonic regi... 36 1.8 gb|AA754855|AA754855 vu51e08.rl Soares mouse mammary gland NbMM... 36 1.8

gb|AA850379|AA850379 EST193146 Normalized rat ovary, Bento Soar... 569 e-161 gb|W63375|W63375 TgESTzy68g02.r1 TgME49 Tachyzoite cDNA Toxopla... 394 e-108 gb|AA946379|AA946379 EST201878 Normalized rat lung, Bento Soare... 353 5e-96 gb|AA964427|AA964427 UI-R-E1-gp-a-08-0-UI.s1 UI-R-E1 Rattus nor... 335 1e-90 gb|AA849599|AA849599 EST192366 Normalized rat muscle, Bento Soa... 307 3e-82 gb|AA849595|AA849595 EST192362 Normalized rat muscle, Bento Soa... 307 3e-82 gblAA850378|AA850378 EST193145 Normalized rat ovary, Bento Soar... 278 3e-73 gb|AA957389|AA957389 UI-R-E1-fu-b-04-0-UI.s1 UI-R-E1 Rattus nor... 157 6e-37 gb|AI012981|AI012981 EST207432 Normalized rat spleen, Bento Soa... 147 6e-34 dbj|C48357|C48357 C.elegans cDNA clone yk469b2 : 5' end, single... 40 0.10 gb|AA440444|AA440444 LD15290.5prime LD Drosophila melanogaster ... 36 1.6 dbj|C22690|C22690 Rice cDNA, partial sequence (S5274 4A) gb|AA697626|AA697626 HL02895.5prime HL Drosophila melanogaster ... 36 1.6 gb|AA550136|AA550136 1244m3 gmbPfHB3.1, G. Roman Reddy Plasmodi... 36 1.6 gb|T43579|T43579 6842 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 36 1.6 gb|AI030501|AI030501 UI-R-C0-jc-g-02-0-UI.s1 UI-R-C0 Rattus nor... 36 1.6 gb|AA056876|AA056876 SWMFCA987SK Brugia malayi microfilaria cDN... 36 1.6 gb|AA440689|AA440689 LD15550.5prime LD Drosophila melanogaster ... 36 1.6

SEQ ID NO:561

HUMAN ESTs

rouges: cesymbol

gb|AA401219|AA401219 zv63a03.r1 Soares total fetus Nb2HF8 9w Ho... 993 0.0 gb|H69371|H69371 yu19h09.rl Homo sapiens cDNA clone 234305 5' s... 44 0.049 gb|N62576|N62576 za13d10.s1 Homo sapiens cDNA clone 292435 3' s... 42 0.19 gb|W77763|W77763 zd69c06.r1 Soares fetal heart NbHH19W Homo sap... 40 0.77 gb|R14832|R14832 yf93g05.r1 Homo sapiens cDNA clone 30203 5'. 40 0.77 gb|T90524|T90524 yd40a04.s1 Homo sapiens cDNA clone 110670 3' s... 38 3.0 gb|R91887|R91887 yq04c09.r1 Homo sapiens cDNA clone 195952 5'. 38 3.0 gb|AA586935|AA586935 nn68h03.s1 NCI CGAP Larl Homo sapiens cDNA... 38 3.0 gb|T46987|T46987 vb12a07.s1 Homo sapiens cDNA clone 70932 3' co... 38 3.0 gb|AA853975|AA853975 aj51f09.s1 Soares testis NHT Homo sapiens ... 38 3.0 gb|T97059|T97059 ye50e01.rl Homo sapiens cDNA clone 121176 5'. 38 3.0 gb|AA883119|AA883119 am15h02.s1 Soares NFL T GBC S1 Homo sapien... 38 3.0 gb|AA860074|AA860074 ak45b06.s1 Soares testis NHT Homo sapiens ... 38 3.0 gb|AA889618|AA889618 ak28f06.s1 Soares testis NHT Homo sapiens ... 38 3.0

gb|AA230450|AA230450 mv73c06.rl Soares mouse 3NME12 5 Mus muscu... 38 1.1 gb|AA058041|AA058041 mj58e08.rl Soares mouse embryo NbME13.5 14... 38 1.1 gb|AA152953|AA152953 mq54a03.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.1 gb|W34414|W34414 ma98b07.r1 Soares mouse p3NMF19.5 Mus musculus... 38 1.1 gb|AA465969|AA465969 ve90c06.s1 Knowles Solter mouse 2 cell Mus... 38 1.1 gb|AA261173|AA261173 mz62b11.rl Soares mouse lymph node NbMLN M... 38 1.1 gb|AA238109|AA238109 mw97b05.r1 Soares mouse NML Mus musculus c... 38 1.1 dbi|C86549|C86549 Mus musculus fertilized egg cDNA 3'-end seque... 38 1.1 gb|AI048677|AI048677 ub29g09.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.1 dbj|D77921|MUSC1A08 Mouse embryonal carcinoma F9 cell cDNA, C1A08 gb|AA396183|AA396183 vb45e04.r1 Soares mouse lymph node NbMLN M... 38 1.1 gb|AA465898|AA465898 vc62f12.s1 Knowles Solter mouse 2 cell Mus... 36 4.3 gb|AA041869|AA041869 mj05b12.r1 Soares mouse embryo NbME13.5 14... 36 4.3 gb|AA637824|AA637824 vr21f11.rl Barstead mouse myotubes MPLRB5 ... 36 4.3 gb|W82563|W82563 mf05g06.r1 Soares mouse p3NMF19.5 Mus musculus... 36 4.3 gb|AA389972|AA389972 vb30e03.rl Soares mouse lymph node NbMLN M... 36 4.3 gb|AA396253|AA396253 vb45f08.r1 Soares mouse lymph node NbMLN M... 36 4.3 gb|AA920907|AA920907 vy84f04.r1 Stratagene mouse macrophage (#9... 36 4.3 gb|AA517166|AA517166 vh98h05.rl Barstead mouse myotubes MPLRB5 ... 36 4.3 gb|AA433599|AA433599 vf47a05.r1 Soares mouse NbMH Mus musculus ... 36 4.3 gb|AA867252|AA867252 vx25c01.r1 Soares 2NbMT Mus musculus cDNA ... 36 4.3 dbj|C85619|C85619 Mus musculus fertilized egg cDNA 3'-end seque... 36 4.3 gb|AA260277|AA260277 va93g05.r1 Soares mouse 3NME12 5 Mus muscu... 36 4.3 gb|AA172548|AA172548 mt04g11.r1 Soares mouse 3NbMS Mus musculus... 36 4.3 gb|AA266879|AA266879 mz96a02.rl Soares mouse lymph node NbMLN M... 36 4.3 gb|AA473019|AA473019 vd43e06.r1 Barstead MPLRB1 Mus musculus cD... 36 4.3

nouspopo istysn

gb|R47549|R47549 SW3ICA119SK Brugia malayi infective larva cDNA... 40 0.24 gb|H32651|H32651 EST107947 Rat PC-12 cells, untreated Rattus sp... 38 0.96 gb|AA955987|AA955987 UI-R-E1-fb-f-06-0-UI.s1 UI-R-E1 Rattus nor... 38 0.96 gb|AA819638|AA819638 UI-R-A0-an-f-03-0-UI.s1 UI-R-A0 Rattus nor... 38 0.96 gb|AI010914|AI010914 EST205365 Normalized rat muscle, Bento Soa... 38 0,96 gblAA893199lAA893199 EST197002 Normalized rat kidney, Bento Soa... 38 0.96 gb|AA945176|AA945176 EST200675 Normalized rat liver, Bento Soar... 38 0.96 gb|R95272|R95272 SWOvL3CA167SK Onchocerca volvulus infective la... 36 3.8 gb|AA917208|AA917208 ka05f02.s1 Onchocerca volvulus infective l... 36 3.8 dbj|C62023|C62023 C.elegans cDNA clone yk249d5 : 5' end, single... 36 3.8 gb|AI013322|AI013322 EST207997 Normalized rat spleen, Bento Soa... 36 3.8 gb|AI043280|AI043280 TENU0920 T. cruzi epimastigote normalized ... 36 3.8 gb|AI009422|AI009422 EST203873 Normalized rat heart, Bento Soar... 36 3.8 gb|AI012655|AI012655 EST207106 Normalized rat placenta, Bento S... 36 3.8 dbi|C62878|C62878 C.elegans cDNA clone yk296d4 : 5' end, single... 36 3.8 gb|AA915818|AA915818 SWOvL3CA1269SK Onchocerca volvulus infecti... 36 3.8 gb|W00009|W00009 TgESTzy75b07.rl TgRH Tachyzoite cDNA Toxoplasm... 36 3.8 gb|AA943503|AA943503 EST199002 Normalized rat brain, Bento Soar... 36 3.8 gb|AA956933|AA956933 UI-R-E1-fl-b-08-0-UI.s1 UI-R-E1 Rattus nor... 36 3.8 gblH54977lH54977 HHU16a Sorghum bicolor cv. TX430 Sorghum bicol... 36 3.8

SEO ID NO:562

gb|AC000112|HSAC000112 Human PAC clone DJ149P21, complete seque... 44 0.082 gb|US0197|CELF25E2 Caenorhabditis elegans cosmid F25E2. 44 0.082 dbj|AB007727|AB007727 Arabidopsis thaliana genomic DNA, chromos... 44 0.082 gb|U02562|BSU02562 Bacillus subtilis N-acetylglucosaminidase (l... 42 0.32 dbj|D45048|BACORFX Bacillus subtilis gene for beta-N-acetylgluc... 42 0.32 emb|Z70683|CEF13B12 Caenorhabditis elegans cosmid F13B12, compl... 40 1.3 emb|AL03828|CEY17G7B Caenorhabditis elegans cosmid Y17G7B, com... 40 1.3 gb|U39740|CELZC64 Caenorhabditis elegans cosmid Y17G7B, com... 40 1.3 gb|AF006490|AF006490 Gossypium hirsutum adenine nucleotide tran... 40 1.3 emb|AL010170|PFSC03098 Plasmodium falciparum DNA *** SEQUENCING... 40 1.3 gb|U3971|GHU53701 Gossypium hirsutum alcohol debydrogenase 2d ... 40 1.3

HUMAN ESTs

gb|AA670455|AA670455 ae62h05.s1 Stratagene lung carcinoma 93721... 852 0.0 gb|AA251062|AA251062 zs07c10.r1 NCI_CGAP_GCB1 Homo sapiens cDNA... 795 0.0

COMPACO CESTOS

gb|AA669916|AA669916 ag42h08.s1 Jia bone marrow stroma Homo sap... 638 0.0 gb|AA300058|AA300058 EST12665 Uterus tumor I Homo sapiens cDNA ... 587 e-165 gb|AA664277|AA664277 ac08c05.s1 Stratagene HeLa cell s3 937216 ... 549 e-154 gb|AA373224|AA373224 EST85230 HSC172 cells I Homo sapiens cDNA ... 529 e-148 gb|AA225705|AA225705 nc10b05.rl NCI_CGAP_Prl Homo sapiens cDNA ... 515 e-144 gb|W27883|W27883 39b10 Human retina cDNA randomly primed sublib... 484 e-134 gb|R24643|R24643 yh36g05.r1 Homo sapiens cDNA clone 131864 5'. 438 e-121 gb|N93137|N93137 zb28h06.s1 Homo sapiens cDNA clone 304955 3'. 432 e-119 gb|AA250933|AA250933 zs07d01.s1 NCI_CGAP_GCB1 Homo sapiens cDNA... 426 e-117 gb|AA216370|AA216370 nc10b05.s1 NCI CGAP Pr1 Homo sapiens cDNA ... 398 e-109 gb|H26939|H26939 yl64g01.r1 Homo sapiens cDNA clone 163056 5'. 394 e-108 gb|H30169|H30169 yo58g09.r1 Homo sapiens cDNA clone 182176 5'. 394 e-108 gb|W38854|W38854 zb28h06.r1 Soares parathyroid tumor NbHPA Homo... 359 5e-97 gb|AA602297|AA602297 np25a11.s1 NCI_CGAP Pr22 Homo sapiens cDNA... 281 1e-73 gb|AA167151|AA167151 zp06e09.r1 Stratagene ovarian cancer (#937... 256 6e-66 gb|AA172387|AA172387 zo99d03.s1 Stratagene ovarian cancer (#937... 234 2e-59 gb|AA173748|AA173748 zo99d03.r1 Stratagene ovarian cancer (#937... 224 2e-56 gb|T83979|T83979 yd66a11.s1 Homo sapiens cDNA clone 113180 3'. 220 3e-55 dbi|D61540|HUM415A08B Human fetal brain cDNA 5'-end GEN-415A08. 194 2e-47 gb|N45148|N45148 yv25a05.r1 Homo sapiens cDNA clone 243728 5'. 165 2e-38 gb|AA642960|AA642960 60f07.s1 NCI CGAP Lym3 Homo sapiens cDNA... 147 4e-33 gb|R90980|R90980 yp93a03.r1 Homo sapiens cDNA clone 194956 5' s... 40 0.62 gb|AA521500|AA521500 aa73h08.s1 NCI CGAP GCB1 Homo sapiens cDNA... 40 0.62 gb|H82921|H82921 yq46h10.s1 Homo sapiens cDNA clone 198883 3' s... 40 0.62 gb|AA294871|AA294871 EST100023 Pancreas tumor I Homo sapiens cD... 38 2.4 dbi|D63191|HUM503F11B Human placenta cDNA 5'-end GEN-503F11. 38 2.4 gb|AA211096|AA211096 zq89g01.s1 Stratagene hNT neuron (#937233)... 38 2.4

gb|AA590520|AA590520 vi54b08.rl Beddington mouse embryonic regi... 38 0.88 gb|AA596629|AA596629 vm56e06.r1 Stratagene mouse Tcell 937311 M... 38 0.88 dbi|D76657|MUS75H09 Mouse embryonal carcinoma F9 cell cDNA, 75H09 38 0.88 gb|AA050336|AA050336 mj12f05.r1 Soares mouse embryo NbME13.5 14... 38 0.88 gblAA120196/AA120196 mn35a12.rl Beddington mouse embryonic regi... 38 0.88 gb|W85267|W85267 mf42c06.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.5 gb|AA239372|AA239372 my38f03.rl Barstead mouse pooled organs MP... 36 3.5 gb|AA497891|AA497891 vi73c07.r1 Stratagene mouse testis (#93730... 36 3.5 gb|AA673053|AA673053 vn45e05.r1 Barstead mouse myotubes MPLRB5 ... 36 3.5 emb|Z36324|MM224 M.musculus mRNA (clone 224) for expressed sequ... 36 3.5 gb|AI021128|AI021128 ub01f06.rl Soares mouse mammary gland NbMM... 36 3.5 gb|AA403424|AA403424 mz56f07.rl Barstead mouse pooled organs MP... 36 3.5 gb|W66683|W66683 me23g11.r1 Soares mouse embryo NbME13.5 14.5 M... 36 3.5 gb|AA689022|AA689022 vs02c03.r1 Barstead mouse irradiated colon... 36 3.5 gblAA574590|AA574590 vn63h11.rl Barstead mouse proximal colon M... 36 3.5

 dbj/C90696/C90696 Dictyostelium discoideum slug cDNA, clone SSJ634
 38 0.78

 gb/AA269052 MAIMA052..AA3 S. mansoni adult Lambda Zap S...
 38 0.78

 gb/AA998786/AA998786 UI-R-C0-im-c-11-0-UI.s1 UI-R-C0 Rattus nor...
 38 0.78

 gb/HA396786/AA998786 UI-R-C0-im-c-11-0-UI.s1 UI-R-C0 Rattus nor...
 38 0.78

 gb/HA390721/AA390721 LD09459.5prime LD Drosophila melanogaster ...
 36 3.1

 dbj/C83908/C83908 Dictyostelium discoideum slug cDNA, clone SSA567
 36 3.1

 gb/HA202425/AA202425 LD02606.5prime LD Drosophila melanogaster ...
 36 3.1

 gb/A1030951 UI-R-C0-jf-d-04-0-UI.s1 UI-R-C0 Rattus nor...
 36 3.1

 gb/A262675/AA246875 LD05855.5prime LD Drosophila melanogaster ...
 36 3.1

 gb/A803682/AA803682 GM13955.5prime GM Drosophila melanogaster ...
 36 3.1

 gb/AA695197/AA695197 GM02389.5prime GM Drosophila melanogaster ...
 36 3.1

 gb/AA695197/AA695197 GM02389.5prime GM Drosophila melanogaster ...
 36 3.1

 gb/AA6950648/AA997528 UI-R-C0-hw-h-11-0-UI.s1 UI-R-C0 Rattus nor...
 36 3.1

 gb/AA695197/AA695197 GM02389.5prime GM Drosophila melanogaster ...
 36 3.1

 gb/AA6950648/AA997528 UI-R-C0-hw-h-11-D-UI.s1 UI-R-C0 Rattus nor...
 36 3.1

 gb/AA6950648/AA997528 UI-R-C0-hw-h-11-D-UI.s1 UI-R-C0 Rattus nor...
 36 3.1

 gb/

SEO ID NO:563

substantially identical to D86956

SEQ ID NO:564

gb|AC004505|AC004505 Homo sapiens chromosome 20, P1 clone 86C1 ... 176 1e-41 gblS78798|S78798 1-phosphatidylinositol-4-phosphate 5-kinase is... 115 4e-23 gb|U48696|HSU48696 Human mariner-like element-containing mRNA, ... 115 4e-23 gb|U66300|LEU66300 Lycopersicon esculentum heat shock protein (... 115 4e-23 gb|AF045432|AF045432 Danio rerio stem cell leukemia protein (ta... 111 6e-22 emb|Z97178|BVRNAEF2 Beta vulgaris cDNA for elongation factor 2 107 9e-21 gb|U39066|MMU39066 Murine MAP kinase kinase 6c mRNA, complete cds. 101 6e-19 gb|U37573|XXU37573 Shuttle expression vector pBKCMV. 96 4e-17 gb|AF033097|AF033097 Avena sativa nonphototropic hypocotyl 1 (N... 90 2e-15 gb|AF027174|AF027174 Arabidopsis thaliana cellulose synthase ca... 86 3e-14 gb|U65376|CFU65376 Canis familiaris rod photoreceptor transduci... 84 1e-13 gb|AF033565|AF033565 Mus musculus cdc2/CDC28-like protein kinas... 82 5e-13 emblZ49980lHS2AMCP H.sapiens mRNA for ets-like protein (clone 7... 82 5e-13 emb|AJ001103|LLARCAB Lactococcus lactis arcA and arcB genes gb|U52868|CFU52868 Canis familiaris retinal cyclic-GMP phosphod... 80 2e-12 gb|G29058|G29058 chicken STS ADL368 76 3e-11 gb|G29060|G29060 chicken STS ADL352 76 3e-11 gb|U34048|HDU34048 Haemophilus ducreyi hemoglobin-binding prote... 76 3e-11 gblU44386|SLU44386 Solanum lycopersicum heat shock protein (TFH... 68 8e-09 gb|S83098|S83098 ribosomal protein S3 [Ambystoma mexicanum=Mexi... 66 3e-08 gb|U48697|HSU48697 Human mariner-like element-containing mRNA, ... gb|AF033096|AF033096 Avena sativa nonphototropic hypocotyl 1 (N... 60 2e-06 emblX99051lLLATTMSAT L.lagopus ATT microsatellite, locus LLST1 58 8e-06 gb|U41811|HAU41811 Homarus americanus beta-I tubulin mRNA, comp... 46 0.029 emb|X99055|LLCAMSAT1 L.lagopus CA microsatellite, locus LLSD5 44 0.12 emb|X65215|BTMISATN B.taurus microsatellite DNA (624bp) 44 0.12 gb|AE001023|AE001023 Archaeoglobus fulgidus section 84 of 172 o... 42 0.46 emb|X80164|HSPDCM4 H.salinarium phage dcm4 Virus DNA 42 0.46 emb|X87859|MTCMAJ12S C.major mitochondrial gene for 12S ribosom... 42 0.46 emb|X87861|MTCPAL12S C.pallidus mitochondrial gene for 12S ribo... 42 0.46 gb|L13767|STMSEC101A Streptomyus lividans sec101 gene, 5' end p... 42 0.46 emb|Y08962|OSTRAMBPR O.sativa mRNA for transmembrane protein >g... 40 1.8 gb|S65686|S65686 {multiple cloning sites, vector} [bacteriophag... 40 1.8 gb|J02871|HUMCP45IV Human lung cytochrome P450 (IV subfamily) B... 40 1.8 dbj|D10450|HUMRTVE Human genomic DNA, retrovirus-like element gb|S65683|S65683 {multiple cloning sites, vector} [bacteriophag... 40 1.8 gb|L14950|PIGALDRED Sus scrofa aldose reductase mRNA, complete ... 40 1.8 gb|S65693|S65693 {multiple cloning sites, vector} [bacteriophag... 40 1.8 gb|S65694|S65694 {multiple cloning sites, vector} [bacteriophag... 40 1.8 emblAJ223292|SPAJ3292 Streptococcus pyogenes SOD gene, complete... 40 1.8 gb|U25846|HAU25846 Homarus americanus clone LOB5 farnesoic acid... 40 1.8 emb|X16699|HSP450P2 Human mRNA for cytochrome P-450HP 40 1.8 gb|U37100|HSU37100 Homo sapiens aldose reductase-like peptide m... 40 1.8

HUMAN ESTS

gb|AA305996|AA305996 EST177003 Jurkat T-cells VI Homo sapiens c... 942 0.0 gb|AA975279|AA975279 oq36e08.s1 NCI_CGAP_GC4 Homo sapiens cDNA ... 900 0.0 gb|AA426359|AA426359 zw11b02.rl Soares NhHMPu S1 Homo sapiens c... 868 0.0 gb|AA424296|AA424296 zv90b08.rl Soares NhHMPu S1 Homo sapiens c... 749 0.0 gb|AA632259|AA632259 np67d04.s1 NCI_CGAP_Br2 Homo sapiens cDNA ... 730 0.0 gb|H80377|H80377 yu59e01.rl Homo sapiens cDNA clone 230424 5'. gb|AA515175|AA515175 ng68f10.s1 NCI_CGAP_Lip2 Homo sapiens cDNA... 615 e-174 gb|AA351770|AA351770 EST59616 Infant brain Homo sapiens cDNA 5'... 611 e-172 gb|AA426522|AA426522 zw11b02.s1 Soares NhHMPu S1 Homo sapiens c... 587 e-165 gb|AA676220|AA676220 zi22a12.s1 Soares fetal liver spleen 1NFLS... 585 e-165 gb|R35132|R35132 yg60e09.r1 Homo sapiens cDNA clone 36874 5'. 579 e-163 gb|H80280|H80280 vu59e01.s1 Homo sapiens cDNA clone 230424 3'. 579 e-163 gb|H81145|H81145 yu60e01.rl Homo sapiens cDNA clone 230520 5'. 561 e-157 gb|AA311105|AA311105 EST18187 Heart I Homo sapiens cDNA 5' end 533 e-149 gb|AA380530|AA380530 EST93691 Supt cells Homo sapiens cDNA 5' end 527 e-147 gb|H81050|H81050 yu60e01.s1 Homo sapiens cDNA clone 230520 3'. 500 e-139 gb|AA460005|AA460005 zx49g07.s1 Soares testis NHT Homo sapiens ... 482 e-134 gb|AA076450|AA076450 zm91d12.rl Stratagene ovarian cancer (#937... 466 e-129 gb|N43873|N43873 yy43e09.rl Homo sapiens cDNA clone 274024 5'. gb|AA076451|AA076451 zm91d12.s1 Stratagene ovarian cancer (#937... 418 e-115 gb|AA907095|AA907095 ol03b12.s1 NCI_CGAP_Lu5 Homo sapiens cDNA ... 414 e-113 gb|W01027|W01027 za56g07.r1 Soares fetal liver spleen 1NFLS Hom... 262 1e-67 gb|AA127183|AA127183 zn29d11.r1 Stratagene neuroepithelium NT2R... 222 1e-55 gb|H65491|H65491 yr56a08.s1 Homo sapiens cDNA clone 209270 3'. 222 1e-55 gb|N48543|N48543 yy49d08.r1 Homo sapiens cDNA clone 276879 5'. 210 4e-52 gb|R32579|R32579 yh54h06.r1 Homo sapiens cDNA clone 133595 5'. 194 2e-47 gb|AA247827|AA247827 i0778.seq.F Human fetal heart, Lambda ZAP ... 117 5e-24 N84048, (many others similar, but smaller)

gb|AA589598|AA589598 v149408.s1 Stratagene mouse skin (#937313)... 398 e-109 gb|AA647465|AA647465 vq82f02.s1 Knowles Solter mouse 2 cell Mus... 385 e-105 gb|AA510284 vh58f02.r1 Soares mouse mammary gland NbMM... 345 4e-93 gb|AA50284|AA510284 vh58f02.r1 Soares mouse p3NMF19.5 Mus musc... 307 9e-82 gb|AA028696|AA028696 mi12e12.r1 Soares mouse p3NMF19.5 Mus musculus ... 244 1e-62 gb|AA177452|AA177452 mt24e12.r1 Soares mouse 3NbMS Mus musculus ... 226 3e-57 gb|AA0783780|AM5080 MDB1409 Mouse brain, Stratagene Mus musculus c... 226 3e-57 db|C88310|C88310 Mus musculus fertilized egg cDNA 3'-end seque... 226 3e-57 gb|AA763786|AA763786 vv98g12.r1 Soares mouse mammary gland NbMM... 94 2e-17 gb|AA667535|AA667535 vv18b12.r1 Stratagene mouse heart (#937316... 40 0.31 gb|AA628274|AA208274 mv96a01.r1 Guay Woodford Beier mouse kidney... 38 1.2

gb|AA444814|AA444814 vg50e04.r1 Soares mouse mammary gland NbMM... 38 1.2 gb|AA763341|AA763341 vw53b12.rl Soares mouse mammary gland NMLM... 38 1.2 gb|AA110827|AA110827 mp57a12.r1 Soares 2NbMT Mus musculus cDNA ... 38 1.2 gb|AA691932|AA691932 vt06b04.r1 Barstead mouse myotubes MPLRB5 ... 38 1.2 gb|W77233|W77233 me61f11.r1 Soares mouse embryo NbME13.5 14.5 M... 38 1.2 gb|AA072872|AA072872 mm80g08.rl Stratagene mouse embryonic carc... 38 1.2 gb|AA980630|AA980630 ua43f05.r1 Soares mouse mammary gland NbMM... 36 4.9 gb|AA065522|AA065522 m154d09.r1 Stratagene mouse testis (#93730... 36 4.9 gblAA982398|AA982398 uh07b08.r1 Soares mouse hypothalamus NMHy ... 36 4.9 gb|W62610|W62610 md58c06.r1 Soares mouse embryo NbME13.5 14.5 M., 36 4.9 gb|AA286651|AA286651 vb79b02.r1 Soares mouse 3NME12 5 Mus muscu... 36 4.9 gb|AA399772|AA399772 vd70g05.r1 Beddington mouse embryonic regi... 36 4.9 gb|AA510475|AA510475 vg32h08.r1 Soares mouse mammary gland NbMM... 36 4.9 gb|AA109064|AA109064 ml63g02.r1 Stratagene mouse testis (#93730... 36 4.9 gb|AA033485|AA033485 mi42c08.r1 Soares mouse embryo NbME13.5 14... 36 4.9 gb|W57221|W57221 md59g10.rl Soares mouse embryo NbME13.5 14.5 M... 36 4.9 gb|AA467106|AA467106 vd98b04.r1 Soares mouse NbMH Mus musculus ... 36 4.9 gb|W97470|W97470 mf95a11.r1 Soares mouse embryo NbME13.5 14.5 M... 36 4.9 gb|AA606917|AA606917 vm91c05.rl Knowles Solter mouse blastocyst... 36 4.9 dbj|C78330|C78330 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 36 4.9 gb|AA013753|AA013753 mh26h12.r1 Soares mouse placenta 4NbMP13.5... 36 4.9 gb|AA145240|AA145240 mr12a03.rl Soares mouse 3NbMS Mus musculus... 36 4.9 gb|AA245533|AA245533 mx03c11.r1 Soares mouse NML Mus musculus c... 36 4.9 gb|AA770893|AA770893 vt13a08.r1 Barstead mouse myotubes MPLRB5 ... 36 4.9 dbj|C79987|C79987 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s... 36 4.9 gb|AA014027|AA014027 mh24a12.rl Soares mouse placenta 4NbMP13.5... 36 4.9 dbj|C89051|C89051 Mus musculus early blastocyst cDNA, clone 01B... 36 4.9 gb|AA058308|AA058308 mj59e09.r1 Soares mouse embryo NbME13.5 14... 36 4.9 gb|AA673826|AA673826 vu08h10.r1 Barstead mouse myotubes MPLRB5 ... 36 4.9 gb|AA637080|AA637080 vn07h04.r1 Knowles Solter mouse blastocyst... 36 4.9 gb|W44292|W44292 mc80c07.rl Soares mouse embryo NbME13.5 14.5 M... 36 4.9

gb|AA955972|AA955972 UI-R-EI-fft-d-10-0-UI.s1 UI-R-EI Rattus nor... 159 4e-37 gb|AA957275|AA957275 UI-R-EI-fq-f-08-0-UI.s1 UI-R-EI Rattus nor... 157 2e-36 cmb|Z84031|SSZ84031 S.scrofa mRNA; expressed sequence tag (5'; ... 111 9e-23 gb|AF041408|AF041408 Fragaria x ananassa clone FA110b 96 5e-18 gb|AA933116|AA933116 SWBmL3SA048T3 Brugia malayi L3 subtracted ... 58 1e-06 gb|AA933363|AA933363 SWBmL3SA048T3 Brugia malayi L3 subtracted ... 52 7e-05 gb|AA660164|AA660164 00001 MtRHE Medicago truncatula cDNA 5'si... 50 3e-04 gb|N37420|N37420 18647 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 44 0.018 gb|H35981|H35981 14503 Lambda-PRL2 Arabidopsis thaliana cDNA cl... 44 0.018 gb|AA082627|AA882627 TENS0198 T. cruzi epimastigote normalized ... 44 0.018 gb|A1026481 IENU693 T. cruzi epimastigote normalized ... 42 0.070 gb|AA946369|AA946369 EST201868 Normalized rat lung, Bento Soare... 42 0.070

OOTEDDE OSOTOO

gb|AI010371|AI010371 EST204822 Normalized rat lung, Bento Soare... 42 0.070 gb|AI010257|AI010257 EST204708 Normalized rat lung, Bento Soare... 42 0.070 dbi|D39318|RICR3325A Rice cDNA, partial sequence (R3325 1A). 40 0.28 gb|U40140|OSU40140 Oryza sativa clone pFDRRC22 mRNA sequence. 40 0.28 gb|AI009132|AI009132 EST203583 Normalized rat embryo, Bento Soa... 40 0.28 dbj|D47291|RICS12574A Rice cDNA, partial sequence (S12574 1A). 40 0.28 dbj|D47316|RICS12613A Rice cDNA, partial sequence (S12613 1A). 40 0.28 gb|T42265|T42265 5528 Lambda-PRL2 Arabidopsis thaliana cDNA clo... 40 0.28 dbj|D47631|RICS13239A Rice cDNA, partial sequence (S13239 1A). 40 0.28 gb|AI013513|AI013513 EST208188 Normalized rat spleen, Bento Soa... 40 0.28 gb|AA751980|AA751980 96AS0896 Rice Immature Seed Lambda ZAPII c... 40 0.28 gb|AA660165|AA660165 00002 MtRHE Medicago truncatula cDNA 5' si... 40 0.28 emb|Z34868|ATTS3597 A. thaliana transcribed sequence; clone FAF... 40 0.28 dbi|D39131|RICR2302A Rice cDNA, partial sequence (R2302 1A). 40 0.28 gb|AA963968|AA963968 UI-R-C0-gs-b-05-0-UI.s1 UI-R-C0 Rattus nor... 40 0.28 gb|AA866346|AA866346 UI-R-A0-bm-a-05-0-UI.s1 UI-R-A0 Rattus nor... 40 0.28 gb|AI044437|AI044437 UI-R-C1-is-e-06-0-UI.s1 UI-R-C1 Rattus nor... 40 0.28 dbi|D41811|RICS4634A Rice cDNA, partial sequence (\$4634_1A). 40 0.28 dbj|C19261|C19261 Rice cDNA, partial sequence (E10176 1A) 40 0.28 dbi|D48409|RICS14588A Rice cDNA, partial sequence (S14588 1A). 40 0.28 dbi|C26556|C26556 Rice cDNA, partial sequence (C12586 1A) 40 0.28 dbi|D47831|RICS13548A Rice cDNA, partial sequence (\$13548 1A). 40 0.28 dbilC72152|C72152 Rice cDNA, partial sequence (E1094 3A) 40 0.28 dbi|D46553|RICS11305A Rice cDNA, partial sequence (S11305 2A). 40 0.28 gb|AI028926|AI0289 (and many others of similar score)

SEQ ID NO:565

emb|X68308|OOLPLIP O.ovis mRNA for lipoprotein lipase gblAE000660lHUAE000660 Homo sapiens T-cell receptor alpha delta... 40 1.2 emb|AL022333|HS474I12 Human DNA sequence *** SEQUENCING IN PROG... 38 4.6 emb|Z12618|CFTRG C.fasciculata gene encoding trypanothione redu... 38 4.6 gb|M81651|HUMSEMIIB Human semenogelin II (SEMGII) gene, complet... 38 4.6 gblM96980|HUMMYT1A Homo sapiens myelin transcription factor 1 (... 38 4.6 gb|U89688|ACU89688 Acanthamoeba castellanii myosin-I binding pr... 38 4.6 gb|AC002497|AC002497 Human Cosmid g1940a142 from 7q31.3, comple... 38 4.6 gblM81652|HUMSMNGLN Homo sapiens semenogelin II mRNA, complete ... 38 4.6 gb|M25665|HUMNCF1A Human neutrophil cytosol factor 1 (NCF-47k) ... 38 4.6 gblM73325lTRFTRPREDC Crithidia fasciculata trypanothione reduct... 38 4.6 gb|M73324|TRFTRPREDB Crithidia fasciculata trypanothione reduct... 38 4.6 emb|X92589|MMSEMIIGN M.mulatta semenogelin II gene emb|Z47556|HSSG1SG2 H.sapiens genes for semenogelin I and semen... 38 4.6 gb|AC004753|AC004753 Homo sapiens chromosome 16, cosmid clone R... 38 4.6 gb|M55067|HUMNADPHO Human 47-kD autosomal chronic granulomatous... 38 4.6

gblM73323lTRFTRPREDA Crithidia fasciculata trypanothione reduct... 38 4.6

HUMAN ESTs

gb|R11942|R11942 yf54c05.r1 Homo sapiens cDNA clone 25950 5'. 656 0.0 gblAA366384|AA366384 EST77326 Pancreas tumor III Homo sapiens c... 470 e-130 gb|T12566|T12566 CHR90086 Homo sapiens genomic clone P94 24 5' ... 133 5e-29 gblR37032lR37032 vf54c05.s1 Homo sapiens cDNA clone 25950 3'. gb|AA661650|AA661650 nv02h12.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA261982|AA261982 zs20d03.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|AA588219|AA588219 no24c11.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA250891|AA250891 zs06c06.rl NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|AA244177|AA244177 nc05a02.r1 NCI CGAP Prl Homo sapiens cDNA ... 38 2.2 gb|AA715147|AA715147 nv10d05.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA659887|AA659887 nv03a10.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA627890|AA627890 nq70a08.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA603596|AA603596 np27b11.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA613738|AA613738 np25h09.sl NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA715248|AA715248 nv10h06.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AI038487|AI038487 ow25d12.x1 Soares parathyroid tumor NbHPA ... 38 2.2 gb|AA252786|AA252786 zs26f10.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|AA287819|AA287819 zs50h04.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|AA564176|AA564176 nj04c08.s1 NCI CGAP Pr21 Homo sapiens cDNA... 38 2.2 gb|AA643870|AA643870 np26h07.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 38 2.2 gb|AA280371|AA280371 zt05f07.rl NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|R00687|R00687 ye78h08.r1 Homo sapiens cDNA clone 123903 5' s... 38 2.2 gb|AA587820|AA587820 nj06h05.s1 NCI_CGAP_Pr21 Homo sapiens cDNA... 38 2.2 gb|AA588443|AA588443 no22c11.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA568385|AA568385 n188f06.s1 NCI CGAP Co10 Homo sapiens cDNA... 38 2.2 gb|AA281831|AA281831 zt06c08.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|AA700438|AA700438 zj74b08.s1 Soares fetal liver spleen 1NFLS... 38 2.2 gb|AA689530|AA689530 ns66e07.r1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA688300|AA688300 nv14a09.s1 NCI_CGAP_Pr22 Homo sapiens cDNA... 38 2.2 gb|AA687962|AA687962 nv13h04.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA526586|AA526586 ni96f11.s1 NCI CGAP Pr21 Homo sapiens cDNA... 38 2.2 gb|AA642589|AA642589 nq73f04.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA541594|AA541594 ni89g07.s1 NCI CGAP Pr21 Homo sapiens cDNA... 38 2.2 gb|AA278713|AA278713 zs76h02.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2 gb|T58661|T58661 va94a07.rl Homo sapiens cDNA clone 69300 5' si... 38 2.2 gb|AA689473|AA689473 ns66e07.s1 NCI CGAP Pr22 Homo sapiens cDNA... 38 2.2 gb|AA459023|AA459023 aa26a09.r1 NCI CGAP GCB1 Homo sapiens cDNA... 38 2.2

DOUBLOSS SACTAS

dbj C76752 C76752 Mus musculus 3.5-dpc blastocyst cDNA 3'-end s 60 2e-	07
gb AA123048 AA123048 mn32g01.r1 Beddington mouse embryonic regi 36	3.2
gb AA616529 AA616529 vo10e01.rl Barstead mouse myotubes MPLRB5 3	36 3.2
gb AA254370 AA254370 va13h09.r1 Soares mouse lymph node NbMLN M	36 3.2
gb AA537288 AA537288 vk46c04.rl Soares mouse mammary gland NbMM	36 3.2
gb AA462365 AA462365 vg74c05.r1 Soares mouse NbMH Mus musculus 3	36 3.2
gb AA589462 AA589462 vl47g07.s1 Stratagene mouse skin (#937313) 36 3	.2
gb AA968017 AA968017 uh06h10.r1 Soares mouse hypothalamus NMHy 3	6 3.2

dbi|C93868|C93868 Dictyostelium discoideum slug cDNA, clone SSL809 36 2.8 gb|AA531984|AA531984 TgESTzz46b06.r1 TgME49 invivo Bradyzoite c... 36 2.8 gb|N60418|N60418 TgESTzy07a10.rl TgRH Tachyzoite cDNA Toxoplasm... 36 2.8 gb|H32045|H32045 EST106774 Rat PC-12 cells, untreated Rattus sp... 36 2.8 gb|AA956789|AA956789 UI-R-E1-fr-h-01-0-UI.s1 UI-R-E1 Rattus nor... 36 2.8 gbiH33275|H33275 EST109117 Rat PC-12 cells, NGF-treated (9 days... 36 2.8 gb|AA531938|AA531938 TgESTzz45b08.r1 TgME49 invivo Bradyzoite c... 36 2.8 dbi|D41507|RICS4044A Rice cDNA, partial sequence (S4044 1A). gblAA799411|AA799411 EST188908 Normalized rat heart, Bento Soar... 36 2.8 gblAA519671|AA519671 TgESTzz27c10.r1 TgME49 invivo Bradyzoite c... 36 2.8 dbj|D40678|RICS2786A Rice cDNA, partial sequence (S2786 1A). 36 2.8 gb|AA012430|AA012430 TgESTzz22b12.rl TgME49cDNA Toxoplasma gond... 36 2.8 dbi|D40551|RICS2612A Rice cDNA, partial sequence (S2612 1A). 36 2.8 gb[AI008452]AI008452 EST202903 Normalized rat embryo, Bento Soa... 36 2.8 dbilD41253|RICS3620A Rice cDNA, partial sequence (S3620 1A). 36 2.8 gb|AA923843|AA923843 UI-R-A1-dr-f-04-0-UI.s1 UI-R-A1 Rattus nor... 36 2.8 gb|AA799410|AA799410 EST188907 Normalized rat heart, Bento Soar... 36 2.8

nguazona natyis

We claim:

25

30

acids,

10

1. A method of diagnosing a disorder characterized by expression of a human cancer associated antigen precursor coded for by a nucleic acid molecule, comprising: contacting a biological sample isolated from a subject with an agent that specifically binds to the nucleic acid molecule, an expression product thereof, or a fragment of an expression product thereof complexed with an HLA molecule, wherein the nucleic acid molecule is a NA Group 1 nucleic acid molecule, and determining the interaction between the agent and the nucleic acid molecule or the expression product as a determination of the disorder. The method of claim 1, wherein the agent is selected from the group 2. consisting of (a) a nucleotide acid molecule comprising NA group 1 nucleic acid molecules or a fragment thereof. (b) a nucleic acid molecule comprising NA group 3 nucleic acid molecules or a fragment thereof, (c) a nucleic acid molecule comprising NA group 17 nucleic acid molecules or a fragment thereof, (d) an antibody that binds to an expression product of NA group 1 nucleic acids. (e)

an antibody that binds to an expression product of NA group 3 nucleic

OPTEDDO OBOZOO

15

(f)

an antibody that binds to an expression product of NA group 17 nucleic

5

acids.

(g)

and agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 1 nucleic acid,

10 (h)

an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 3 nucleic acid, and

(I)

an agent that binds to a complex of an HLA molecule and a fragment of an expression product of a NA group 17 nucleic acid.

- 3. The method of claim 1, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which is specific for a different human cancer associated antigen precursor, and wherein said plurality of agents is at least 2, at least 3, at least 4, at least 6, at least 7, or at least 8, at least 9 or at least 10 such agents.
- 25 4. The method of claims 1-3, wherein the agent is specific for a human cancer associated antigen precursor that is a breast, a gastric, a lung, a prostate, a renal or a colon cancer associated antigen precursor.
 - A method for determining regression, progression or onset of a condition characterized by expression of abnormal levels of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising

25

5

monitoring a sample, from a patient who has or is suspected of having the condition, for a parameter selected from the group consisting of

320

(I)

the protein,

(ii)

a peptide derived from the protein,

10 (iii)

an antibody which selectively binds the protein or peptide, and

(iv)

cytolytic T cells specific for a complex of the peptide derived from the protein and an MHC molecule,

as a determination of regression, progression or onset of said condition.

 The method of claim 5, wherein the sample is a body fluid, a body effusion or a tissue.

 The method of claim 5, wherein the step of monitoring comprises contacting the sample with a detectable agent selected from the group consisting of

(a)an antibody which selectively binds the protein of (I), or the peptide of (ii).

(b) a protein or peptide which binds the antibody of (iii), and

30 (c)

25

16.

16 molecule.

5

10

a cell which presents the complex of the peptide and MHC molecule of (iv). The method of claim 7, wherein the antibody, the protein, the peptide or 8. the cell is labeled with a radioactive label or an enzyme. The method of claim 5, comprising assaying the sample for the peptide. 9. 10 The method of claim 5, wherein the nucleic acid molecule is a NA Group 3 molecule. 11. The method of claim 5, wherein the nucleic acid molecule is a NA Group 11 molecule. 12. The method of claim 5, wherein the nucleic acid molecule is a NA Group 12 molecule. The method of claim 5, wherein the nucleic acid molecule is a NA Group 13. 13 molecule. 14. The method of claim 5, wherein the nucleic acid molecule is a NA Group 14 molecule. The method of claim 5, wherein the nucleic acid molecule is a NA Group 15. 15 molecule.

The method of claim 5, wherein the nucleic acid molecule is a NA Group

ODYGEDED.OSOZOO

- 17. The method of claim 5, wherein the protein is a plurality of proteins, the parameter is a plurality of parameters, each of the plurality of parameters being specific for a different of the plurality of proteins.
- 5 18. A pharmaceutical preparation for a human subject comprising
 an agent which when administered to the subject enriches selectively the
 presence of complexes of an HLA molecule and a human cancer associated antigen, and
 a pharmaceutically acceptable earrier, wherein the human cancer
 associated antigen is a fragment of a human cancer associated antigen precursor encoded by a

 10 nucleic acid molecule comprises a NA Group 1 molecule.
 - 19. The pharmaceutical preparation of claim 18, wherein the agent comprises a plurality of agents, each of which enriches selectively in the subject complexes of an HLA molecule and a different human cancer associated antigen.
 - 20. The pharmaceutical preparation of claim 19, wherein the plurality is at least two, at least three, at least four or at least 5 different such agents.
- The pharmaceutical preparation of claim 18, wherein the nucleic acidmolecule is a NA Group 3 nucleic acid molecule.
 - 22. The pharmaceutical preparation of claim 18, wherein the agent is selected from the group consisting of
- (1) an isolated polypeptide comprising the human cancer associated antigen, or a functional variant thereof,
 - (2) an isolated nucleic acid operably linked to a promoter for expressing the isolated polypeptide, or functional variant thereof,
 - (3) a host cell expressing the isolated polypeptide, or functional variant thereof, and

15

- (4) isolated complexes of the polypeptide, or functional variant thereof, and an HLA molecule.
- The pharmaceutical preparation of claims 18-22, further comprising an adjuvant.
 - 24. The pharmaceutical preparation of claim 18, wherein the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell is nonproliferative.
 - 25. The pharmaceutical preparation of claim 18, wherein the agent is a cell expressing an isolated polypeptide comprising the human cancer associated antigen or a functional variant thereof, and wherein the cell expresses an HLA molecule that binds the polypeptide.
 - 26. The pharmaceutical preparation of claim 18, wherein the agent is at least two, at least three, at least four or at least five different polypeptides, each coding for a different human cancer associated antigen or functional variant thereof.
- 20 27. The pharmaceutical preparation of claim 18, wherein the agent is a PP Group 2 polypeptide.
 - 28. The pharmaceutical preparation of claim 18, wherein the agent is a PP Group 3 polypeptide or a PP Group 4 polypeptide.
 - 29. The pharmaceutical preparation of claim 25, wherein the cell expresses one or both of the polypeptide and HLA molecule recombinantly.
 - The pharmaceutical preparation of claim 25, wherein the cell is nonproliferative.

- A composition comprising
 an isolated agent that binds selectively a PP Group 1 polypeptide.
- 32. The composition of matter of claim 31, wherein the agent binds selectively a PP Group 3 polypeptide.
 - 33. The composition of matter of claim 31, wherein the agent binds selectively a PP Group 11 polypeptide.
- 10 34. The composition of matter of claim 31, wherein the agent binds selectively a PP Group 12 polypeptide.
 - 35. The composition of matter of claim 31, wherein the agent binds selectively a PP Group 13 polypeptide.
 - The composition of matter of claim 31, wherein the agent binds selectively a PP Group 14 polypeptide.
 - The composition of matter of claim 31, wherein the agent binds selectively
 a PP Group 15 polypeptide.
 - 38. The composition of matter of claim 31, wherein the agent binds selectively a PP Group 16 polypeptide.
- 39. The composition of claims 31-38, wherein the agent is a plurality of different agents that bind selectively at least two, at least three, at least four, or at least five different such polypeptides.
 - 40. The composition of claims 31-38, wherein the agent is an antibody.

- 41. The composition of claim 39, wherein the agent is an antibody.
- 42. A composition of matter comprising a conjugate of the agent of claims 31-41 and a therapeutic or diagnostic agent.
- 43. The composition of matter of claim 42, wherein the conjugate is of the agent and a therapeutic or diagnostic that is a toxin.
- 10 44. A pharmaceutical composition comprising an isolated nucleic acid molecule selected from the group consisting of:
 - (1)

NA Group 1 molecules, and

(2)

NA Group 2 molecules, and a pharmaceutically acceptable carrier.

- 45. The pharmaceutical composition of claim 44, wherein the isolated nucleic acid molecule comprises a NA Group 3 or NA Group 4 molecule.
- 46. The pharmaceutical composition of claim 44, wherein the isolated nucleic acid molecule comprises at least two isolated nucleic acid molecules coding for two different polypeptides, each polypeptide comprising a different human cancer associated antigen.
- 25 47. The pharmaceutical composition of claims 44-46 further comprising an expression vector with a promoter operably linked to the isolated nucleic acid molecule.
 - 48. The pharmaceutical composition of claims 44-46 further comprising a host cell recombinantly expressing the isolated nucleic acid molecule.

- 49. A pharmaceutical composition comprising an isolated polypeptide comprising a PP Group 1 or a PP Group 2 polypeptide, and
- a pharmaceutically acceptable carrier.
 - 50. The pharmaceutical composition of claim 49, wherein the isolated polypeptide comprises a PP Group 3 or a PP Group 4 polypeptide.
- 51. The pharmaceutical composition of claim 49, wherein the isolated polypeptide comprises at least two different polypeptides, each comprising a different human cancer associated antigen.
 - The pharmaceutical composition of claim 49, wherein the isolated
 polypeptides are PP Group 11 polypeptides or HLA binding fragments thereof.
 - 53. The pharmaceutical composition of claim 49, wherein the isolated polypeptides are PP
 Group 12 polypeptides or HLA binding fragments thereof.
 - 54. The pharmaceutical composition of claim 49, wherein the isolated polypeptides are PP Group 13 polypeptides or HLA binding fragments thereof.
- The pharmaceutical composition of claim 49, wherein the isolatedpolypeptides are PP Group 14 polypeptides or HLA binding fragments thereof.
 - The pharmaceutical composition of claim 49, wherein the isolated polypeptides are PP Group 15 polypeptides or HLA binding fragments thereof.

- 57. The pharmaceutical composition of claim 49, wherein the isolated polypeptides are PP Group 16 polypeptides or HLA binding fragments thereof.

 58. The pharmaceutical composition of claims 49-57, further comprising an adjuvant.

 59. An isolated nucleic acid molecule comprising a NA Group 3 molecule.
- 60. An isolated nucleic acid molecule comprising a NA Group 4 molecule.
- 61. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 11 molecule or a fragment thereof.
- 62. The isolated nucleic acid molecule of claims 59-60, wherein the molecule
 is a Group 12 molecule or a fragment thereof.
 - 63. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 13 molecule or a fragment thereof.
- 20 64. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 14 molecule or a fragment thereof.
 - 65. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 15 molecule or a fragment thereof.
 - 66. The isolated nucleic acid molecule of claims 59-60, wherein the molecule is a Group 16 molecule or a fragment thereof.
 - 67. An isolated nucleic acid molecule selected from the group consisting of

2.5

30

(a)

a fragment of a nucleic acid selected from the group of nucleic acid consisting of SEQ ID NOs presenting nucleic acid sequences among SEQ ID NOs. 1-816, of sufficient length to represent a sequence unique within the human genome, and identifying a nucleic acid encoding a human cancer associated antigen precursor,

(b)

complements of (a),

10

provided that the fragment includes a sequence of contiguous nucleotides which is not identical to any sequence selected from the sequence group consisting of

(1) sequences having the GenBank accession numbers of Table 1

(correct?).

- (2) complements of (1), and
- (3) fragments of (1) and (2).

68. The isolated nucleic acid molecule of claim 67, wherein the sequence of contiguous nucleotides is selected from the group consisting of:

(1)

at least two contiguous nucleotides nonidentical to the sequence group,

(2)

at least three contiguous nucleotides nonidentical to the sequence group,

(3)

at least four contiguous nucleotides nonidentical to the sequence group,

(4)

at least five contiguous nucleotides nonidentical to the sequence group,

(5)

at least six contiguous nucleotides nonidentical to the sequence group.

(6)

at least seven contiguous nucleotides nonidentical to the sequence group.

- 69. The isolated nucleic acid molecule of claim 67, wherein the fragment has a size selected from the group consisting of at least: 8 nucleotides, 10 nucleotides, 12 nucleotides, 14 nucleotides, 16 nucleotides, 18 nucleotides, 20, nucleotides, 22 nucleotides, 24 nucleotides, 26 nucleotides, 28 nucleotides, 30 nucleotides, 50 nucleotides, 75 nucleotides, 100 nucleotides, and 200 nucleotides.
- 70. The isolated nucleic acid molecule of claim 67, wherein the molecule encodes a polypeptide which, or a fragment of which, binds a human HLA receptor or a human antibody.
 - 71. An expression vector comprising an isolated nucleic acid molecule of claims 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69 or 70 operably linked to a promoter.
 - 72. An expression vector comprising a nucleic acid operably linked to a promoter, wherein the nucleic acid is a NA Group 2 molecule.
- 73. An expression vector comprising a NA Group 1 or Group 2 molecule and a nucleic acid encoding an HLA molecule.
 - A host cell transformed or transfected with an expression vector of claims
 71, 72, or 73.
 - 75. A host cell transformed or transfected with an expression vector of claim71 or claim 72 and further comprising a nucleic acid encoding HLA.
- 76. An isolated polypeptide encoded by the isolated nucleic acid molecule of claims 59, 60, 61, 62, 63, 64, 65, or 66.

5

- 77. A fragment of the polypeptide of claim 76 which is immunogenic.
- The fragment of claim 77, wherein the fragment, or a portion of the fragment, binds HLA or a human antibody.
- 79. An isolated fragment of a human cancer associated antigen precursor which, or portion of which, binds HLA or a human antibody, wherein the precursor is encoded by a nucleic acid molecule that is a NA Group 1 molecule.
- 10 80. The fragment of claim 79, wherein the fragment is part of a complex with HLA.
 - 81. The fragment of claim 79, wherein the fragment is between 8 and 12 amino acids in length.
 - 82. An isolated polypeptide comprising a fragment of the polypeptide of claim 76 of sufficient length to represent a sequence unique within the human genome and identifying a polypeptide that is a human cancer associated antigen precursor.
 - 83. A kit for detecting the presence of the expression of a human cancer associated antigen precursor comprising
 - a pair of isolated nucleic acid molecules each of which consists essentially of a molecule selected from the group consisting of
- 25 (a) a 12-32 nucleotide contiguous segment of the nucleotide sequence of any of the NA Group 1 molecules and
 - (b) complements of ("a"), wherein the contiguous segments are nonoverlapping.

25

15

- 84. The kit of claim 83, wherein the pair of isolated nucleic acid molecules is constructed and arranged to selectively amplify an isolated nucleic acid molecule that is a NA Group 3 molecule.
- 5 85. A method for treating a subject with a disorder characterized by expression of a human cancer associated antigen precursor, comprising

administering to the subject an amount of an agent, which enriches selectively in the subject the presence of complexes of an HLA molecule and a human cancer associated antigen, effective to ameliorate the disorder, wherein the human cancer associated antigen is a fragment of a human cancer associated antigen precursor encoded by a nucleic acid molecule selected from the group consisting of

- (a) a nucleic acid molecule comprising NA group 1 nucleic acid molecules,
- (b) a nucleic acid molecule comprising NA group 3 nucleic acid molecules.
- (c)
 a nucleic acid molecule comprising NA group 17 nucleic acid molecules.
- 86. The method of claim 85, wherein the disorder is characterized by expression of a plurality of human cancer associated antigen precursors and wherein the agent is a plurality of agents, each of which enriches selectively in the subject the presence of complexes of an HLA molecule and a different human cancer associated antigen.
- 87. The method of claim 86, wherein the plurality is at least 2, at least 3, at least 4, or at least 5 such agents.

auksedeo . debzat

5

10

15

20

88. The method of claims 85-87, wherein the agent is an isolated polypeptide selected from the group consisting of PP Group 1, PP Group 2, PP Group 3, PP Group 4, PP Group 5, PP Group 6, PP Group 7, PP Group 8, PP Group 9, PP Group 10, PP Group 11, PP Group 12, PP Group 13, PP Group 14, PP Group 15, PP Group 16 and PP Group 17 polypeptides.

The method of claims 85-88, wherein the disorder is cancer.

90. A method for treating a subject having a condition characterized by expression of a human cancer associated antigen precursor in cells of the subject, comprising:

(I) removing an immunoreactive cell containing sample from the subject,

(ii)

contacting the immunoreactive cell containing sample to the host cell under conditions favoring production of cytolytic T cells against a human cancer associated antigen which is a fragment of the precursor,

(iii)

introducing the cytolytic T cells to the subject in an amount effective to lyse cells which express the human cancer associated antigen, wherein the host cell is transformed or transfected with an expression vector comprising an isolated nucleic acid molecule operably linked to a promoter, the isolated nucleic acid molecule being selected from the group of nucleic acid molecules consisting of NA Group 1, NA Group 2, NA Group 3, NA Group 4, NA Group 5, NA Group 6, NA Group 7, NA Group 8, NA Group 9, NA Group 10, NA Group 11, NA Group 12, NA Group 13, NA Group 14, NA Group 15, NA Group 16, and NA Group 17.

15

- 91. The method of claim 90, wherein the host cell recombinantly expresses an HLA molecule which binds the human cancer associated antigen.
- The method of claim 90, wherein the host cell endogenously expresses an
 HLA molecule which binds the human cancer associated antigen.
 - 93. A method for treating a subject having a condition characterized by expression of a human cancer associated antigen precursor in cells of the subject, comprising:
 - (I) identifying a nucleic acid molecule expressed by the cells associated with said condition, wherein said nucleic acid molecule is a NA Group 1 molecule
 - (ii)
 transfecting a host cell with a nucleic acid selected from the group
 consisting of
 - (a) the nucleic acid molecule identified,

(b)

- a fragment of the nucleic acid identified which includes a segment coding for a human cancer associated antigen,
 - (c)
 deletions, substitutions or additions to (a) or (b), and

25

30

5

10

(d)

degenerates of (a), (b), or (c);

(iii)

culturing said transfected host cells to express the transfected nucleic acid molecule, and;

(iv)

introducing an amount of said host cells or an extract thereof to the subject effective to increase an immune response against the cells of the subject associated with the condition.

94. The method of claim 93, further comprising:

(a)

identifying an MHC molecule which presents a portion of an expression product of the nucleic acid molecule,

wherein the host cell expresses the same MHC molecule as identified in

(a) and wherein the host cell presents an MHC binding portion of the expression product of the
nucleic acid molecule.

- 95. The method of claim 93, wherein the immune response comprises a B-cell response or a T cell response.
 - 96. The method of claim 95, wherein the response is a T-cell response which comprises generation of cytolytic T-cells specific for the host cells presenting the portion of the expression product of the nucleic acid molecule or cells of the subject expressing the human cancer associated antigen.

15

25

- 97. The method of claim 93, wherein the nucleic acid molecule is a NA Group 3 molecule.
- 98. The method of claims 93 or 94, further comprising treating the host cells to render them non-proliferative.
 - 99. A method for treating or diagnosing or monitoring a subject having a condition characterized by expression of an abnormal amount of a protein encoded by a nucleic acid molecule that is a NA Group 1 molecule, comprising

administering to the subject an antibody which specifically binds to the protein or a peptide derived therefrom, the antibody being coupled to a therapeutically useful agent, in an amount effective to treat the condition.

The method of claim 99, wherein the antibody is a monoclonal antibody.

101. The method of claim 100, wherein the monoclonal antibody is a chimeric antibody or a humanized antibody.

102. A method for treating a condition characterized by expression in a subject of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

administering to a subject a pharmaceutical composition of any one of claims 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 47, and 58 in an amount effective to prevent, delay the onset of, or inhibit the condition in the subject.

- 103. The method of claim 102, wherein the condition is cancer.
- 104. The method of claims 102-103, further comprising first identifying that
 the subject expresses in a tissue abnormal amounts of the protein.

15

20

- 105. A method for treating a subject having a condition characterized by expression of abnormal amounts of a protein encoded by a nucleic acid molecule that is a NA Group I nucleic acid molecule, comprising
- (I) identifying cells from the subject which express abnormal amounts of the protein.
 - (ii) isolating a sample of the cells:
 - (iii) cultivating the cells, and
 - (iv) introducing the cells to the subject in an amount effective to provoke an immune response against the cells.

106. The method of claim 105, wherein the cells express a protein selected from the group consisting of a PP Group 11 protein, a PP Group 12 protein, a PP Group 13 protein, PP Group 14 protein, a PP Group 15 protein and a PP Group 16 protein.

107. The method of claim 105, further comprising rendering the cells non-proliferative, prior to introducing them to the subject.

108. A method for treating a pathological cell condition characterized by aberrant expression of a protein encoded by a nucleic acid molecule that is a NA Group 1 nucleic acid molecule, comprising

administering to a subject in need thereof an effective amount of an agent which inhibits the expression or activity of the protein.

- 25 109. The method of claim 108, wherein the agent is an inhibiting antibody which selectively binds to the protein and wherein the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody.
 - 110. The method of claim 108, wherein the agent is an antisense nucleic acidmolecule which selectively binds to the nucleic acid molecule which encodes the protein.

15

20

25

- 111. The method of claim 108, wherein the nucleic acid molecule is a NA Group 3 nucleic acid molecule.
- 112. A composition of matter useful in stimulating an immune response to a
 plurality of a protein encoded by nucleic acid molecules that are NA Group 1 molecules,
 comprising
 - a plurality of peptides derived from the amino acid sequences of the proteins, wherein the peptides bind to one or more MHC molecules presented on the surface of the cells which express an abnormal amount of the protein.
 - 113. The composition of matter of claim 112, wherein at least a portion of the plurality of peptides bind to MHC molecules and elicit a cytolytic response thereto.
 - 114. The composition of matter of claim 113, further comprising an adjuvant.
 - 115. The composition of matter of claim 114, wherein said adjuvant is a saponin, GM-CSF, or an interleukin.
 - 116. An isolated antibody which selectively binds to a complex of:

a peptide derived from a protein encoded by a nucleic acid molecule that is
 a NA Group 1 molecule and

(ii)and an MHC molecule to which binds the peptide to form the complex,wherein the isolated antibody does not bind to (I) or (ii) alone.

117. The antibody of claim 116, wherein the antibody is a monoclonal antibody, a chimeric antibody or a humanized antibody.

19/4629X

HY LU-12	AY LU 17	H7-1,0-1,5
LUCA15	LUCA15	L0CA15
DESB230E	DXSB237P	DXS8237E

DOUGEOUS ISSTIC

Figure 1

	ANGANGROGGGGGGTHGARGATTGGRCCCTANCTAGTGCTHTNACABARTTTGGTATAAAARGATTTAGTTGTGGGGGCCGTGTGATBAANGA GROTGGGGGATTCTGGCCTGTTAAAAGAAAGAAAAGAAAGAAA	100
ت ج ×	K M G B S B P A M M G G P P W G S O F E B P A C S N M R D Y P P P P	902
E L K	OGGETIANSAGTORTGETOMBAGRGARGETOGGENGETOTTOMBATTIKEGTITTOMBAGRGARGATTGGGGGGAGGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGGAGATTGGGAGATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGGAGAATTGGAATTGAATTGAATTGGAGAATTGGAATTGGAGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGGAATTGA	300
TGTALMCC)	MOTH WAS RESTRAINED FOR THE RESTREEN OF THE PARTY OF STREET OF THE RESTREET OF	400
S S S	TOCHTERCONTINCOMINGREGISTAN PROMOTED FOR THE STATE OF THE STATE OF THE REAL STATE OF THE STATE O	200
K 7 0	D Y R G G D G Y S II D Y R G R E A Y II H H Y R D A II A V D F R	9
R D	GRDAPPECTATION TO THE BEAR GITY DISTRIBUTED GRANTING GRAN	100
S D L	S D I, D F R A R B Q S R S D P R R R D V S D I, D F R D F R D G T O V	000
CTT I'AGA	, 3.	900
SATT-TEAC D F 1	MEMITTREGGGCOMEMINICAGENTITANOMATAKGOODIGGGCCUAGGCCCAATATTTGGATACATCAGCCCAACATACATCAGATACATCAGCCCTAC	1000
nagataga O D R	MANGHTRARGADONTGCTGGTNTSAATGTGAAGAGANANTGCAGACAACAAAGAGAAGAAGAAGAAGAAGAAGAAGAAGA	1100
TGAGCAT	TTTGGCLATCAGAACAAGAGAACAAGAAGAAGAGAAGACATTGGACATGCTCTCAGCACATTTCAGAACAAGCAAAGTCGAAGACTCAAGACC	1200
SATAAGT D K 3	Addatandstorochaetticseaucateangoncanestronecticatesectistandaekkietisteaactistoraekangasankeneeken O D K S Q L S G H K K Q S D A G L F K K B L G G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G A F R K B C G L B F J, G R A D A G	1300
ACAGAAGG	GEANANG	1400
CATCCCC	TGEKETACKTERAGA	1500

Figure 2

2.30c (00) 3 / 00 211/10

Ě

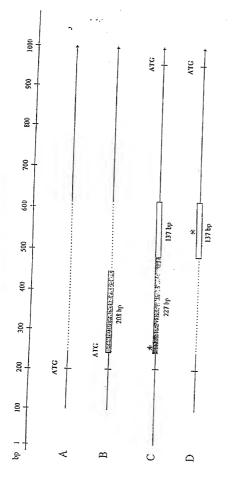
											•	.,	~.	2	~
7531	AGT TGAAGGAGTATAACACACACATTAACA	100 V C V D V D	CHATCHAGGUERGAPTITICATATURE DANCOULTERANCO CHATCHAGGUERGA V S S L D F H Y C K R C F K H J G G H K S S C S F C K L L C Y	ACRICAMOLYMOMYTNATOACHTRECKTERIORANTATECKTATERIORANDAGEGEOUTRECECTRAGEGEOUTERECEPROSCEDAGEGEOUTRECECTRAGEGEOUTRECECTRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRECETRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRECETRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGEOUTRAGEGOUTRAGEGEOUTRAGEGOUTRAGEGOUTRAGEGOUTRAGEGOUTRAGEGOUTRAGEGO	, 22	U PACTITICGRADARACHGRAGARATOMERY: UP RICHERT PRESCUCIOCUCIO CONTEGERACIO COMO CONTEGERACIO COMO CONTEGERACIO COMO CONTEGERACIO COMO COMO COMO COMO COMO COMO COMO C	TGGGGG	CCCCATTIACCA	MINITICOMERGATACE	CTACATATGAT	CONCOCCTORONG TANTON TO THE VIEW OF THE VI	AGTSACGREGATITICAGGAV	COCTOCACCTAAAGTGCTAA	PUTWINGSECTTOGGRAATA HYAGAGGAGE FETERERGAGGANAMARANAMAGCTTOGGCAGAGACTOCHCACACACACACACACACACACACACACACACACACAC	CACTGACTEGAATAAACTGGCTTGTCTCCTTTGCEGAAGGCAAGT
							-	• •	,-	7	æ	=	ಮ	5	5

3109	1700	3150	3400	ill.	3599
A MAGNICTICATE CANDER CROCK CONCENTRICA CANDER AND A CENTER CONCENTRATION OF THE TOPIC CONCENTRATION OF THE CONTRACT OF THE CO		TCHOZGAA/TVARGETTANKESTANKESTANKESKASKASTANCOARACHAGAANAGANGCHECHCCAARAGAGAACHAGAAACHAGAACHAGAACHAGAAAACAA K. Y. D. K. K. Y. D. K. K. Y. D. K. K. Y. D. K. K. C.		PEROCETYCHACHARITHECHARITHETHERANALWINDSTITCCHARIANANALANG TO STEAT ROOM SET TER BOANER TO STEAT	ACCICCCCTTGTTGTTTGTTTGTTTGTTTCTTTTTTTATATGTTCTTGTTGTTGTTTTTTTAAATAAA
196	100;	1034	1067	1101	

Fig 2(contid)

COSCULTATO CONTRACTO

5



Transcript Variant B

СПКСТРАСАЛАСТВОЯССТІТИ (<u>UBA VECKOTITU (USOFICIO) (USOFICE CONCITANCE ACTOR</u> (145) 145 15 15 15 15 15 15 15 15 15 16 (145)

LEASCHACTECOTTGGATGGATGGANTUALTATTANGGAGAGAGTGTGATGATGTZTGAAGTTGGAGTGGAAGTTAGAGAGTAGAAATTAGAGAGCAC 360 (152) YSHRTCHLDROBATGGAATGGAATTATTAGAGAGAGAGAGAGAGATGAAGTGTGAAGTTGGAAGTGGAAATTAGAGAGCAAC 360 (152) OEFRFAPGK. CANSAAGAAAGATTGCTCCCGGGTGG...

Fig.3a

09/462957 07/4629

6 / 8

WO 99/04265

Figure 3b.

227b0 excn:
GACTGGGTGAAAGCTTTTTCTGCAGCAGTCATGTTAAAAACCTTGTGTTGACTTTCCTCG
TGTTCTGAAACTAAC
AGAACTGGACCTTTTCGGACTGGGTGAAAGCTTTTCTGCAGCAGTCATGTTGAAAACC
TTGTGTTGACTTTCTT
CGTGTTGAATTGGGACGATAAAAGTTTACTCCGCCACTTCGTCTTAAAATAGCAAAAC

137bc exon:

TITGCTGTTTTCTGCAG

ATCTAGGACCTTGTTACAGAACTCTGCCAAAAAAAAATGTTTACAGAAGAATGTGCTGT GATTAGAGAAGAATA

TGCTGGTGTGGAGATTTCAAACTCTCTGGACAATATGAATAACACTGTCTTTGTTTCTAC

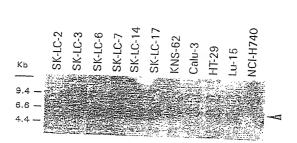
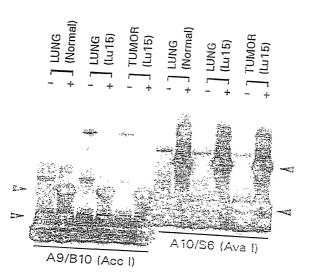


Figure 4



Figures

617 720 2441

1.VD 5499.1 US

Attorney Docket No. L0461/7078

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

CANCER ASSOCIATED NUCLEIC ACIDS AND POLYPEPTIDES

the specification of which is attached hereto unless the following is checked:

- [X] was filed on July 15, 1998, as PCT application no. PCT/US98/14679, now U.S. application no. 09/462,929, bearing attorney docket no. L0461/7078, and was amended on (if applicable).
- I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.
- I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate, or section 365(a) of any PCT International application designating at least one country other than the United States listed below and have also identified below any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed:

Prior Foreign PCT International Application(s) and any priority claims under 35 U.S.C. §§119 and 365(a),(b):

Priority

			Claimed
9721697.2 (Number)	Great Britain (Country- if PCT, so indicate)	11 October 1997 (DD/MM/YY Filed)	[X] [] YES NO
(Number)	(Country- if PCT, so indicate)	(DD/MM/YY Filed)	[][] YES NO
(Number)	(Country- if PCT, so indicate)	(DD/MM/YY Filed)	[][] YES NO

I hereby claim the benefit under Title 35, United States Code, §119(e) of any United States provisional application(s) listed below:

60/061,599	10 October 1997
(Application Number)	(filing date)
60/061,765	10 October 1997
(Application Number)	(filing date)

Robert M. Abrahamsen

COLCOSO "CHOLD!

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s), or §365(o) of any PCT International application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56, which became available between the filing date of the prior application and the national or PCT International filing date of this application:

08/896,164	17 July 1997	Pending
(Application No.)	(filing date)	(status-patented, pending, abandoned)
08/948,705	10 October 1997	Pending
(Application No.)	(filing date)	(status-patented, pending, abandoned)
09/102,322	22 June 1998	Pending
(Application No.)	(filing date)	(status-patented, pending, abandoned)

PCT International Applications designating the United States:

(PCT Appl. No.) (U.S. Ser. No.) (PCT filing date) (status-patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:

Jason M. Honeyman

	John N. Anastasi	37,765	Ronald J. Kransdort	20,004	Christopher S. Schultz	37,929
	Gary S. Engelson	35,128	Peter C. Lando	34,654	Alan B. Sherr	42,147
	Neil P. Ferraro	_39,188	Helen C. Lockhart	39,248	Robert A. Skrivanek, Jr.	41,316
	Thomas G. Field	P-45,596	Matthew B. Lowrie	38,228	Paul D. Sorkin	39,039
	Stephen R., Finch	42,534	William R. McClellan	_29,409_	Alan W. Steele	45,128
	Edward R. Gates	31,616	Daniel P. McLoughlin	P-46,066	Mark Steinberg	40,828
	Richard F. Giunta	36,149	James H. Morris	34,681	Joseph Teja, Jr.	45,157
	Peter J. Gordon	35,164	M. Lawrence Oliverio	30,915	John R. Van Amsterdam	40,212
	John C. Gorecki	38,471	Timothy J. Oyer	36,628	Michael G. Verga	39,410
١	William G. Gosz	27,787	Edward F. Perlman	28,105	Robert H. Walat	°P-46,324
1	Lawrence M. Green	29,384	Michael J. Pomianek	P-46,190	Lisa E. Winsor	44,405
٠	George L. Greenfield	17,756	Elizabeth R. Plumer	36,637	David Wolf	17,528
	James M. Hanifin, Jr.	39,213	Randy J. Pritzker	35,986	Douglas R. Wolf	36,971
	Therese A. Hendricks	30,389	Robert E. Rigby, Jr.	-36,904	Ivan D. Zitkovsky	37,482
	Steven J. Henry	27.900	Edward J. Russavage	43.069		

31,624

Address all telephone calls to John R. Van Amsterdam at telephone no. (617) 720-3500. Address all correspondence to:

John R. Van Amsterdam c/o Wolf, Greenfield & Sacks, P.C. Federal Reserve-Pleza 600 Atlantic Avenue Boston, MA 02210-2211

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment. or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Inventor's signature Full name of first or sole inventor:

Citizenship:

Residence: Post Office Address:

New York, NY

605 Third Avenue, New York, NY 10158

Date

Date

Date

Date

Date

Inventor's signature

Full name of second joint inventor: Citizenship:

Residence: Post Office Address:

Matthew J. Scanlan USA New York, NY

1275 York Avenue, New York, NY 10021

Inventor's signature

Full name of third joint inventor:

Citizenship: Residence:

Post Office Address:

Elisabeth Stockert

Austria New York, NY

1275 York Avenue, New York, NY 10021

Inventor's signature

Full name of fourth joint inventor:

Citizenship: Residence:

Post Office Address:

Ali Gure Turkey

New York, NY

1275 York Avenue, New York, NY 10021

Inventor's signature

Full name of fifth joint inventor: Citizenship:

Post Office Address:

Xao-Tseng Chen

Taiwan New York, NY

The New York Hospital-Cornell Med. Center, Dept. of Pathology,

525 East 68th Street, New York, NY 10021

Docket No.: L0461/7078

Page 4 of 8 4

\	Inventor's signature		Date
W	Full name of sixth joint inventor:	Ivan Gout	
1/2	Citizenship:	Ukraine Co DO	
01	Residence:	London, England	
0	Post Office Address:	91 Riding House Street, London W1P 8BT, England	
ν.	Inventor's signature		Date
14	Full name of seventh joint inventor:	Michael O'Hare	
\sqrt{h}	Citizenship:	Great Britain	
γ	Residence:	London, England	
1	Post Office Address:	91 Riding House Street, London W1P 8BT, England	
Tire	Inventor's signature		Date
0.	Full name of eighth joint inventor:	Yuichi Obata	Date
Wes	Citizenship:	Japan	
1	Residence:	Nagoya, Japan	
177	Post Office Address:	Chikusa-ku, Nagoya 464, Japan	
Wanger.			
- 24	11 A A A	4/	2 24.
Table 1	M. L. Wilhall	/ 15 /4:	al 1.000
G.	Inventor's signature		Date /
(1)	Full name of ninth joint inventor:	Michael Pfreundschuh	1
Ulm	Citizenship:	Germany	
Op	Residence:	Homburg/Saar, Germany	
2/	Post Office Address:	Med. Klinik I, Universitat des Saarlandes, D-66421 H	lomburg, Germany
(100)	Λ		
	/ <u>/</u> .	1- 6	2000
	Inventor's signature		ay 2600
1.	Full name of tenth joint inventor:	Özlem Türeci	Date
P	Citizenship:	Germany	
111	Residence:	Homburg/Saar, Germany	
10	Post Office Address:	Med. Klinik I, Universitat des Saarlandes, D-66421 H	lomburg, Germany
		,	,
	lla Cal	15 14.	. 2
\	Ugur Sæhin	AS Place	1 2000
1,,	Inventor's signature	TI (C.2.)	*Date
'M	Full name of eleventh joint inventor: Citizenship:	Ugur Sahin- Turkey	
1/2	Residence:	Homburg/Saar, Germany	
1,	Post Office Address:	Med. Klinik I, Universitat des Saarlandes, D-66421 H	Iombura Germens
	THE STATE PRODUCTION		omong, comany

Docket No.: L0461/7078

Docket No.: L0461/7078

Page 4 of 5 4

Inventor's signature / Full name of sixth join vinventor: Ivan Gout
Citizenship: Utrains

 Citizenship:
 Ukraine

 Residence:
 London, England

 Post Office Address:
 91 Riding House Street, London W1P 8BT, England

Inventor's signature 4/5/50

Full name of seventh joint inventor:
Citizenship:
Residence:
Post Office Address:

Michael O'Hare
Great Britain
London, England
91 Riding House Street, London WIP 8BT, England

Inventor's signature
Full name of eighth joint inventor:
Citizenship:

Japan

Japan

Residence: Nagoya, Japan
Post Office Address: Chikusa-ku, Nagoya 464, Japan

Inventor's signature
Full name of ninth joint inventor:

Michael Pfreundschub

Date

Citizenship: Germany
Residence: Homburg/Saar, Germany
Post Office Address: Med Visited University

Post Office Address: Med. Klinik I, Universitat des Saarlandes, D-66421 Homburg, Germany

Inventor's signature
Full name of tenth joint inventor:
Citizenship:

Gamestie

Citizenship: Germany
Residence: Homburg/Saar, Germany
Post Office Address: Homburg/Saar, Germany

Post Office Address: Med. Klinik I, Universitat des Saarlandes, D-66421 Homburg, Germany

Inventor's signature
Full name of eleventh joint inventor: Ugur Sahin Date

Citizenship: Turkey
Residence: Homburg/Saar, Germany
Post Office Address: Med Klinik I II.

Post Office Address: Med. Klinik I, Universitat des Saarlandes, D-66421 Homburg, Germany

Docket No.: E0461/7078

Page 4 of \$4

Date

Date

·		
• .	•	
Inventor's signature		Date
Full name of sixth joint inventor:	Ivan Gout	
Citizenship:	Ukraine	
Residence:	London, England	
Post Office Address:	91 Riding House Street, London W1P	8BT, England
Inventor's signature		Date
Full name of seventh joint inventor:	Michael O'Hare	
Citizenship:	Great Britain	
Residence: Post Office Address:	London, England	ont today
rost Office Address:	91 Riding House Street, London W1P	an I, England
x Anichi Obo	efa	May 8, 2000 X
Inventor's signature		Date
Full name of eighth joint inventor:	Yuichi Obata	
Citizenship:	Japan	
Residence:	Nagoya, Japan	
Post Office Address:	Chikusa-ku, Nagoya 464, Japan	
:		
"		
Inventor's signature		Date
Full name of ninth joint inventor:	Michael Pfreundschuh	240
Citizenship:	Germany	
Residence:	Homburg/Saar, Germany	
Post Office Address:	Med. Klinik I, Universitat des Saarlan	des, D-66421 Homburg, Germany
;		-

Inventor's	signature	
Full name	of tenth iou	nt inventor:

Citizenship:

COURTORD

. oscozoo

Özlem Türeci Germany

Residence: Homburg/Saar, Germany Post Office Address:

Med. Klinik I, Universitat des Saarlandes, D-66421 Homburg, Germany

Inventor's signature

Full name of eleventh joint inventor: Ugur Sabin

Citizenship: Turkey Residence:

Homburg/Saar, Germany Post Office Address:

Med. Klinik I, Universitat des Saarlandes, D-66421 Homburg, Germany

SEQUENCE LISTING

<110> Ludwig Institute for Cancer Research Old, Lloyd J. Scanlan, Matthew J. Stockert, Elisabeth Gure, Ali Chen, Yao-Tseng Gout. Ivan O'Hare, Michael Obata, Yuichi Pfreundschuh, Michael Tureci, Ozlem Sahin, Ugur

<120> CANCER-ASSOCIATED NUCLEIC ACIDS AND POLYPEPTIDES

<130> L0461/7039/JRV/ERG

<140> Unknown

<141> 1998-07-15

<150> U.S. 08/896,164

<151> 1997-07-17

<150> U.S. 60/061.599

<151> 1997-10-10

<150> U.S. 60/061,765 <151> 1997-10-10

<150> U.S. 08/948,705

<151> 1997-10-10 <150> U.S. SNU (LUD5506.1) <151> 1998-06-22

<150> U.K. 9721697.2

<151> 1997-10-11

<160> 816

<170> FastSEQ for Windows Version 3.0

<210> 1

<211> 474

<212> DNA

<213> Homo Sapiens

<400> 1

WO 99/04265 PCT/US98/14679

```
totagactgt cotcoccate tgtggnacta acactateat acagtettgt cotatagggt
                                                                       60
ctctggantc tgttcttcac acagagctgg gctcgagttt tcagtgcttt tgaatccang
                                                                      120
egetetgtet etgggaenge tteatteaag tettgaetta egecatettg geaagatgte
                                                                       180
tgcttgccat ccaanttctc catggtatcc cctttanaga cttcaccaag agatgttctt
                                                                       240
ctctcaaaga tgttgttatt attgntaact tgantcccat tttgcttcag taaqcctgaa
                                                                      300
tacctcaget tecaaatete taateegeae ttggaqqeet tqeaetteea naaqanqnge
                                                                      360
tttttcaaat cttcnagttt cnttcttctg ctcctgtctt tgnatagatc aanctcnttt
                                                                      420
tgntgnnagt centnntnaa ententtgen tgntggnngn tentttnean ngge
                                                                      474
      <210> 2
      <211> 1054
      <212> DNA
      <213> Homo Sapiens
tctagactgt cctccccatc tgtggangnn acactgatca tatcantctg ggtcctanca
                                                                       60
gggtctctgg cgtctgtgct tcacnntant agctgggctc nantctncan ctgcttttga
                                                                      120
atecaegnge tetgtetetg ggaetgette attenantet tgaetnaggn catettggca
                                                                      180
agatgtctgc ttgccatccn agtnctcnat ggtatcccct ttcananact ccancnanta
                                                                      240
gatnttetee tetenaanat gttgteenee ntegtnanet egagteeeat tntgettean
                                                                      300
taccetnant acteaenete canateteen nteeneacet ggngggettn etettnecae
                                                                      360
canatnactc tttcncnnaa tcttctacat tctctctttt ctgctccagt ctnttgatca
                                                                      420
aacenecetn nggttenana teenegatna aettetetgt enngtngtnt etettteet
                                                                      480
enggeegata ttggeetenn etecentnnn aancateece eenegtgtna nnttntttgg
                                                                      540
ngcccccent attettecae cectaaattn cetttnteee ceaatttteg etgtantegn
                                                                      600
ttctccnctc ccannncenc enentateth ecceenentt ngnnteccec ettnnaacne
                                                                      660
conststern stacenttst aacstacest strintstron annitsenst tetestata
                                                                      720
nntnaanent ntteacetae ngacattnat nnnntnenen ttentennaa teanattetn
                                                                      780
tnetecenne etecatetna tttetntnet etatetnnen nattennete attatteent
                                                                      840
ntactctnnc actcttctcn cnnntacatn ncancetccc anacanence etccanantn
                                                                      900
tnttetetet teetttetee eeteeteenn eteeceaete eteetteee tntettetne
                                                                      960
taentntntt teneteettn nateneeste atettetees ttetessast satetantas
                                                                     1020
ctccncnttc ttnantccnt ncctttntct antc
                                                                     1054
      <210> 3
      <211> 441
      <212> DNA
      <213> Homo Sapiens
      <400> 3
attttgttgg aattttatct ttggcagata ggcagatata tttttgtgca tgtaaacaat
                                                                        60
cacatatata taaagctata taactgtaca tttttgacag ctttgtaatc acaggttgct
                                                                      120
ctgtcgtttc cctccataaa tggtttaatc tttgtttcct tcgcttttt tagagttgtc
                                                                       180
aattcatatt gccctctcca gtttgtacag tttcttagat gcttgttact tttaaaaagg
                                                                      240
atgttaggag aattcatttt ttntcataaa gaaatggaac actatttaaa ataaatttag
                                                                      300
cneettgeaa etaqageaat etttttagtn ntacetetee taacegaeta attenacaga
                                                                      360
atetttgean aaattacaca gtattaettt tgentgtgtg tgatnaceae tgttegteng
                                                                      420
ccccttgaan gtttnacatc t
                                                                      441
      <210> 4
      <211> 247
      <212> DNA
      <213> Homo Sapiens
```

<400> 4

```
accgctcacc gcagacgtgg tggctgcagt cagtcttccc gagtgaggga tttcgccgcc
                                                                       60
cgctttcagg cccgtttggc ttaaataact gtgattgatg gccatgcngg anaaatatcc
                                                                      120
aactgagggg atctctcncg tcacttcacc gagttccgat gtgattcana agggcanttc
                                                                      180
cetggggact gaatggcata ecceantttt eteggateee tttengagee getteaateg
                                                                      240
ctgttct
                                                                      247
     <210> 5
      <211> 486
     <212> DNA
     <213> Homo Sapiens
     <400> 5
gaggaaagga acagatacct gccaagtcaa tcagagaatg gcggtaaaac ttgatggtta
                                                                       60
geogtetgte tgttcatttt tatgaatgce actatagaag taatetttag aaactggage
                                                                      120
tgttttcagt ttaatgacgt ccatggaatt aaccggattc attaataacg gcatcaggaa
                                                                      180
gagcattgtt tgaaggatcc tctgcctagt ctattaatca gtttcctttt agacaggtgt
                                                                      240
acaggtgatt tctggccctc attcacagaa tagaatagtg gtcgttgaga agcagaccta
                                                                      300
gcacctagca agtcttcaga ccagtctttt aagtaatttt tattccctga gaagaaaatt
                                                                      360
gaagaaacaa ttggggcaaa ganatttgtg gggttttact anaaagatct cnataaagca
                                                                      420
aggactgtca ctctattcct cattcatatg agggttcaca ttaaaaaatga cagtgttaca
                                                                      480
cagggt
                                                                      486
     <210> 6
     <211> 766
      <212> DNA
     <213> Homo Sapiens
      <400> 6
ggggtcggag tetgggggtt cgcgcccgcc gacccgcgcc etqctccctc tcaqcacctg
                                                                       60
ggcggacgaa atgaccatta agaagtagat gcccagatgc aaaagtgatg aaacagtcca
                                                                      120
tttgtcataa agtaagatgc agctgtggca tgtcaaccag cttggaacaa aattgtatct
                                                                      180
gtttttctca gaagagaatt ccacaaggtt aaatcagcaa acaaagaaaa catggtattt
                                                                      240
tgaaatatga ttaaactcct gatgctgcag cagaggctaa gaatattaat ggccagatct
                                                                      300
agtgcacaca tggtcttctg aagaagccat gggtagctgt tgtagctgtc caqataaaga
                                                                      360
cactgtccca gataaccatc ggaacaagtt taaggtcatt aatgtggatg atgatgggaa
                                                                      420
tgagttaggt tctggcataa tggaacttac agacacagaa ctgattttat acacccgcaa
                                                                      480
acgtgactca gtaaaatggc actacctctg cctgcgacgc tatggctatg actcgaatct
                                                                      540
cttttctttt gaaagtggtc caaggtgtca aactgggaca aggaatcttt gcctttaagt
                                                                      600
gtgcccgtgc aaaaagaatt atttaacatg ttgcaaagag attatgcaaa aataatagta
                                                                      660
taaatgttgg tggaagaagc caatttgtag aaagaaataa tcatcaagac aagaattgga
                                                                      720
agtecetaan aacaaceteg aaacaactae aactecaaga tittge
                                                                      766
      <210> 7
      <211> 567
      <212> DNA
      <213> Homo Sapiens
      <400> 7
gagcacatgg cccaggggtg gagccgacct ccagacacca gaagaacaac ctaagttcct
                                                                       60
cccacacagt cagacttgaa actagaggac agacagagaa ccaggaatgt ctactttgcc
                                                                      120
cccatgagga atagaaacaa cttcctgact atcccttggt gggacaggag gactttcaag
                                                                      180
aggatgaaac tctgaaaaag agtttaccct gtgattaatt aaatgaaatc ctcaatggcc
                                                                      240
agagtaatta tacaaagatt aagtgtcaaa tgggagagag tttacctgga agcagtaaga
                                                                      300
ttcgttgctt ttattggttc atttgttttg ttttctgctt tcggtagaaa tggatcttca
                                                                      360
```

cgagtcagtt gaatttgatt aaacagaatt tagcatttca gccatttggg tgacagtggg

tgcattctaa aggtattcag accttccttt	cttaaaggac	cgggatatca				480 540 567
<210> <211>						
<212>	DNA					
<213>	Homo Sapie	ens				
<400>	8					
gcgaggctca	agegggeete	tgccccacc	ttcgataacg	actacageet	ctccgagett	60
ctctcacage	tggactctgg	agtttcccag	gctgtcgagg	gccccgagga	gctcagccgc	120
agctcctctg						180
tcggtggact						240
tcaaccagcg						300
tccggggaca						360
gacagcggtg						420
tggctgctgc						480
cacatggccg						540
agtgtcaacg						600
ggatgagtct						660
cgcatcctgc	ggacgcccac	gcaagrigge	CLGCCaacaa	cgggcaaggn	gaatatettg	720
ogodecoege						730
<210>	9					
<211>						
<212>	DNA					
<213>	Homo Sapie	ens				
<400>						
ataatttgtt						60
tacaaagtta						120
ttacangnac						180
gtgacatgtg	ctagacccaa	tetecaaaaa	cgtatggttg	acaaagacag	ctgactgctg	240
gggtaaaact						300
tttcttttgc						360
ctctttcaaa caaacacata						420
cgaagaacac						480
acaacctcac	attttctctt	ccacacctan	agetteeageg	aggeceegae	gagcacccaa	540
		coacgeccan	ggccaagggc	agcac		585
<210>	10					
<211>	661					
<212>	DNA					
<213>	Homo Sapie	ens				
	-					
<400>	. 10					
tctagagttc	gcacggaaac	acgaagaata	ggtggtgcat	attttctggt	ttggangtgg	60
atccancctt	ctgcatcctg	tgacaaaata	ttanttatac	cttctaaagt	atggcaatgt	120
caancatttc	atttanatan	aananattca	ccaccaaata	gtttgacacc	gtgtctaaag	180
attcggaata	tgtttgatcc	cgttatggaa	ataggggatc	agtggcattt	ggcaattcaa	240
		cantgataat				300
aattcacgtg	agggttgtgt	atatgttaaa	tgtctgtctc	cagaatatgc	tngaaatgct	360
tttaaatcat	tgcatngctc	ttgnttttat	nggaaattgg	ttacagtaaa	atatttacga	420
cnanatagat	accaccatcg	ctttccccan	gctctcactt	ncnacactcc	attnaanncc	480

```
atcaantate atatmaacte natgteteat ettegtette ngactggnet aaccaattet
                                                                      540
caanggnant teetgaaaan attitettee attietaana etgittintit acnatagnna
                                                                      600
aattoongtt tggotttttg tottooottt ttaaatcott tttgtanntn atattttant
                                                                      661
      <210> 11
      <211> 1162
      <212> DNA
      <213> Homo Sapiens
      <400> 11
totagagggt ttttctcagg ggcttctctt agtgctgtng ctqctgcagg ctqcqcaggg
cctccgcaca tgcgcggata aggccacaca gctggatgct agtctccang gaggtgctag
                                                                      120
agcccaqttc agcagaggcc cangtcagct tctgcaagag ggctgtctgt gtgcagqcca
                                                                      180
tgacatctgt atttggaggc acagcangag caggtggccc ctgggctgcc ttnagtcctg
                                                                      240
ctgcagetcc ctcacagtgc tccggacnan gtactggggg ctggggggga agtcnaganc
                                                                      300
ccanggggan etetgagget gaggccanet ggtgeteeeg agettgggan aaggcaacet
                                                                      360
gngcattcan anogggatta totttatoca cototganto tagttoctga caagccacgo
                                                                      420
aatanatttt cogctgtttg tottggagga ngatogtooc geagteegea cacgtetege
                                                                      480
ccancatgcg gtaaccgcgc aacanatant encecatgan eegggagatg egatettgce
                                                                      540
getecegten egeetgeane acttegtete egeeteaate gggggeteee aaganaante
                                                                      600
gtenactica actoogtica agggecatgt tineogtitt teaacegece gggeteaaaa
                                                                      660
ggaaatttac ttcaaaaccg gnancngccc tcccgcttcg gctccgcccc ttccaataac
                                                                      720
ttccgccgga tnaanggcng accttnacnc cttaaccttn tcctcaanaa cctccccttt
                                                                      780
tecceggggt tggnnecttt teengntget tacenaanaa acetttettn tngggaanne
cttccnttna aacccgggaa ttcccaaggg gaacaaaaaa ctttcccnaa nnccccaaaa
                                                                      900
geeteectaa aggaanentt eeeetttggt aaatneneet eeegntteee aaaaaacetn
                                                                      960
gaaaattgnc ctnannnggg ggntcacccc ctttcnnttn cctttcntgg nntttaaang
gmmaacnacn tttgetttta aaaaaantne ceneettgge ntetannetn eeeeettggg
                                                                     1080
gttccccttt ntgnnnncaa nncngnggnn natnnnnttc nttacaaaat nattnncanc
                                                                     1140
cccnttttca aaagaaannt tg
                                                                     1162
     <210> 12
      <211> 850
      <212> DNA
      <213> Homo Sapiens
      <400> 12
totagactgt cotcoccatc tgtggaacta acactatcat acagtottgt cotaaagggt
ctctggcgtc tgttcttcac agagagctgg gctcgagttt tcagtgcttt tgaatccagg
                                                                      120
egetetgtet etgggactge tteatteaag tettgaetta ggccatettg gcaagatgte
                                                                      180
tgettgecat ccaagttete catggtatee cetttagaga etteaccaag agatgttett
                                                                      240
ctctcaaaga tgttgttatt attgttaact tgagtcccat tttgcttcag tagcctgaat
acctcanctt ccaaatctct aatccgcact tggaggcctt gcacttccac aagatgagct
                                                                      360
ttttccaaat cttctatttt ctttcttct gcttcctgtc ttttgatgaa atcaagctct
                                                                      420
ttttgttgaa aatccttgat caacttcttt geettgttgt atttettte caaggeetga
                                                                      480
tactggcttt gagtctcttt gagatgctca ttcactgtgt ggcataatgt ttgggcctca
                                                                      540
atcoantanc tttccaactt caacattett teettantet ettetangtt ttgttgngan
                                                                      600
ttgggttttt tctaanttcc caactcactt tctcctccgt gcccnaattc ccgggtacca
                                                                      660
aacacaaatg ggnncgcctt cccnannaaa aannnaaaaa agctcntcca aaatctcnqn
                                                                      720
nnetttggnn taatcaatgg neaananetg ttteeetgnt ntnaaaattn nttnteeget
                                                                      780
caaaaatttn ctnanantna cttttcaaat ttttttgcgc ccnccgttnc aanccnaana
                                                                      840
ntannccaat
                                                                      850
```

```
<211> 372
      <212> DNA
      <213> Homo Sapiens
      <400> 13
totaqaatat ngaattttcc ctctttaaca cangggccct ccttgtcatt gaccttagct
                                                                       60
aaaccatggc aattcataaa tagaggaaac attaatgaat taaaaqcatt ccttatttt
                                                                      120
taactaatat ttgtacattt tettagtete tttecaagte tttgcetett tttttettt
                                                                      180
atttttattt tttcctttga cagatggtat cccttcctgg atcattcatt tcaccttggt
                                                                      240
ttctaacttt aggtttactt tcacttgtta tttgacttag caggtgcaac anaaacaaga
                                                                      300
aacaaatgtg cccaccccac tttccgctta actgaaaagc ttaaaataaa tttctgaatt
                                                                      360
atgtanaant to
                                                                      372
      <210> 14
      <211> 1167
      <212> DNA
      <213> Homo Sapiens
      <400> 14
totagactat ntgtcctttg ctcttcaaaa ccaggattcc ctaattctga actgcttata
                                                                       60
agatagcaaa acaagtctgg ctaaactaca gtcaagagct taggatctat ggaagccaag
                                                                      120
aaggeecagg geteeatgaa tgggetggge aggggeacga ggeettgeet ttgtetgaga
                                                                      180
agtecteaca ceacagetga teagatggaa acaatgggga ancagagttt eeeggtgeeg
                                                                      240
tettteecca geccagatte caccaagege tggaaageag agetgggaat eteccaagge
                                                                      300
agagteette cagettteet ecceetcaae tteacaetee eetacetgtg getetggaag
                                                                      360
gagtcacact tgaacctcaa ccaaacttcc caatatcagt tggaagtcaa aaagatgaan
                                                                      420
cotttettte tggaetttta getacaaagg ggaaetteet gtgeeaagee etggtteete
                                                                      480
ataccccaac gagtgctgtg ggtttcaaca ngtcttctct aaaaagggtg ccccanggtt
                                                                      540
attqtgtgga gtctanggaa nctcatatcc tcaggatgat catttgtgtg ttggtccagt
                                                                      600
gaaagcattt cccaactggt ccttccataa aactggggta tttcaantga ncacannaat
                                                                      660
tcaacctatg gatttaaang ttnnanancc anaaacctta ngcaagtctt taanaantan
                                                                      720
tgcanngtta attaaactta nctaagntgg ctaatttntt attcaangcg gggcataagg
                                                                      780
tttcatcggc tctaaattgn ttaanatgnn ctgtaagntt gtngaanata tatccctggg
                                                                      840
aagntnotaa aatangtttt otngaactan ongtgotnta naanotnngn ggggntnang
                                                                      900
ggggatccgg ggatccccan caatanaagc tntccngnnt ngcncctnca aaggngtaag
                                                                      960
ccctgttngc ttnaaaanaa tccttncttg caancnaatg gatgtcntgg ggtancntgg
                                                                     1020
naacntttgg tncccntnnn cctttgnnnn tatnaantnc nggnctgttc tccaactnna
                                                                     1080
aaccttnnnn nnnnaagacc ccttngnaan accctttttg ntnanttttt cnncntgang
                                                                     1140
ngaanatnnc tnnccncnnn antnttg
                                                                     1167
      <210> 15
      <211> 1148
      <212> DNA
      <213> Homo Sapiens
      <400> 15
tctagatttt tttttttt ttttgaattc ttangcttgt tttacaaaac tttttattca
                                                                       60
tcagagctgt agtgaaatat catcattgta attgatattc tagcactaca aaaggcacaa
                                                                      120
tgaagettat ttagttecag tactggaaat cagaggtaac agcacatect teettggaca
                                                                      180
tgctttactc tgctgtagtg gtcatcacag ttttgatttt ctggataaga agttcaccac
                                                                      240
ageatttgtg cattcatctg atagccatct teeetgaagg acattgcatt etteageatt
                                                                      300
aacagcgtgt antttttctc tctctctttt cctgattacc tcttttgaaa ttctcaagac
                                                                      360
atttggggga agctttgcaa atgccttcag cctggtccag acttctttct gaaaagtgct
                                                                      420
atcagggaaa acttcagtaa caagtccttg nagcacatgc ctctcccgct gttaacttct
                                                                      480
```

ttccaaaaat aagcatctct gttgccttgg ctgggctcat tatcttccgn aaagtgtaag

540

600

660

```
anggagcatc cttccgggac tttggnctan gtgacctaaa tggtgttatg aaaatgttgc
cctgtcagaa tgcatacacg ggaatcnnnt cncccaangg agggtnaacn qqnnatnccc
                                                                      660
anaanctggn ccanttgnca netgnannne anangnettn gggnaaaate naatnnnnne
                                                                      720
aancccaaca anattteece necanttnna aenggnnatt aantttttaa cettteenee
tecnantnee aaccaagggg ggaaanntee aantnnnnnt tnnecennat taatteecaa
nnancngqnn nntnnncnnc natttcccng gtnanaacna cttnntnntt nnnntccaac
                                                                      900
ctttccngng naanntttna agtnnnacnc cannantttc cagtnnttna nnccnaannn
nttaagggnn nntttccctt ttttgggncc nnnnttannn annnnnnctt ttgnnnannc
                                                                     1020
naacetteeg nngggneach nnchagnnnt tteaaaanee nanttnnntt eeennnnnn
                                                                    1080
ntnnccaann nngnncanct qnntnnnngg tnccantnan nngnnntcna ancnngcnnn
                                                                     1140
nonnntta
                                                                     1148
      <210> 16
      <211> 1113
      <212> DNA
      <213> Homo Sapiens
      <400> 16
totagaaggt gotgocagac ggoccottga gotgggotto cogcacccac ottotgetoo
actgtcttct ccagcgactg gatgcgcatc tgctccttcc tcangctggc ctggagggcc
                                                                      120
aacgetteeg eetgggeett geteeggace tgggegatet eetegtttge canetgeage
                                                                      180
tteteeteeg egtgggeett canggettgg tacetetgge eeteetgggt gateettgee
                                                                      240
angtaateet ccaegeaett etteagtgae tettegttet tgeggtagee etegateace
                                                                      300
tetttetgtt tetcaaaacg ettgaagagg teggagaagg acttetecat qqaqttcana
                                                                      360
tetgtggtaa gttggtettt ttettttana aetttetgga ttteagettt ggaaagttee
                                                                      420
ttetgettet gaactteete catggeetgg tacacaacet ettegaacet gtecatgate
                                                                      480
ttecceagtt ccaaggttet tecegtggag etecteaeae etgeteetea geteeeggtt
                                                                      540
ctectectgt gtegeettta ccactgeate caaagteett etggetgtae tgggancaag
                                                                      600
tecaetatna ngteegggtn qacaagggtg ggeeeccaag egegggaaaa actqqqqqqt
                                                                      660
ctcntgccna attcccgggt acaacacaat tgngcgcttt cccganaaaa aaaaaaaaan
getegtecaa attteeggaa ettggegtaa ateannggne aataaetgtt teecengtgt
tnaaaatntt ttccgctcaa aanttgctaa anntactttt naaatttttn cnnccccctt
                                                                      840
ttcaatccaa aatnanccca tngnannatt ccanccanna taanaacngg nttnaaatcc
                                                                      900
cttnncnggg gggaatttgg cccaantatn aaannentac cnaaaaaccn tccqnnttaa
ntcenaaaac ccttttcaaa anttaaacct aannnnanct ttnnnntaan ccaaanngtt
                                                                     1020
ncccaaaaan anctingggg tnaccaaggc aananngtit cccnggitaa aattittitac
                                                                     1080
ccgcnaaaat tcananaaan tntnnnttan ntt
                                                                     1113
      <210> 17
      <211> 731
      <212> DNA
      <213> Homo Sapiens
      <400> 17
tetagageet teeceggeea tetacaggea ggatgegget gggaaaaaga caactggaat
                                                                       60
ttetegaagg ttgatggtcc gcacggttga ngattetacg tggttetett ggtteccetq
                                                                      120
gtgtgtgtgt gtgtgtggag gangcegegg ceettagatn acettettga getegtegta
                                                                      180
caggaccage acgaangege eccecatgee eegcaggacg ttggaccacg caccettgaa
                                                                      240
naaggeettg coccectcat etetgaagat etteeteeaa cantegaegg tgeeeqtqta
                                                                      300
catgatgtca geteetttge geeeggactg cateateatt egeegeegea eegttemaan
                                                                      360
gggtangaca ccacgccggc cacngnegte acggtetgeg cgateateca geteaceaen
                                                                      420
atgtgcgtgt tcttggggtc ngggancatn cccttggccg tatcgtanac nccgaantaa
```

geogeologic atatnatgat geologic tgeogaatto cogggineca acacaatggn

negetteeeg aanaaaaaaa ataaaaanet negteeaaat eteggaaett tggentante

atgggcatan ctgttttccc tgtgtgaaat tntttccgct caacaatttg ctanaantaa

WO 99/04265 PCT/US98/14679

tatnacaaag g	metaccane	Caaaiiiicacc	CCCattantt	attecaantn	720
					,51
<210> 18					
<211> 1145					
<212> DNA					
<213> Homo Sapie	ens				
<400> 18					
tctagactat cttcttcatc	atcactctct	gaatcatgaa	cagtaattga	ggttggtttt	60
actacacget gaagaccact	gggtcctgct	tgttcctcat	caacatccac	aggaataatt	120
gcctggctgt gagctggagt	attatttcca	ctctcggcca	ccacctctcc	atcttcttgg	180
acgatgtett ceateteatt	taatgcgtca	gctgcaaact	gctgctctcc	tggctgcaga	240
tettgeegaa agteattete	ctcgtctgag	tcatctggat	gatggtgatt	gttgtcgtgg	300
atgttggcat tgttattctg	ggcattatta	tcgtcattgt	tggagttctg	gttgctaaca	360
agagctgatg aaacaccaat	tectgtgeet	gcactcagac	caactcgagc	acaacccttg	420
ggtggttcac gaaacatctg	atccagtgaa	ataaactcta	ggctgggtaa	taattcaata	480
aactggccaa aagagtccag	cttcaaagca	tggcaccgta	ctaggttgat	atcaaccaat	540
cgagtccatc ttgagtggtc	tgagattcaa	ttgtatgggt	tgtgtanatn	agggcaattg	600
taaattgcca gatatttgnt	acaggnaaaa	aacttcaatt	gactgctttc	atccctatat	660
caagtgatga taccaagatt	tttctacaaa	atcaagccaa	accaatactt	caccaagatt	720
cggcaattan ccaattccgg	ctcctgttnn	caaaaaactc	atctncaatt	atcccaanat	780
nnaaggggnt tcaaaactgg	ggggaaaact	ccaaantcct	gncaaacctt	tttnggggca	840
nntnnnnnn caccaannet	tttggtttan	gggaangggt	nggntttccg	aanttttaag	900
gttancctaa cggggnnaan	cnanttantg	nntnnngggt	nanccaannt	tttannttta	960
annngncaat tttttnnaa	ncnccccaan	nannaaanna	annnntgnna	antttttna	1020
aaanccncct ggntttccaa	antggtnntt	ttaaaaaaan	nttggggntn	annncnnncc	1080
nangggnang gggnanneen	nncnaattt	taannggttc	caaanttttn	gggganntnn	1140
ntttt					1145
<210> 19					
<211> 1106					
<212> DNA					
<213> Homo Sapie	ens				
<400> 19					
	21.02.01.01.01				
totagactat cttcttcatc	accaetetet	gaancatgaa	cagtaattga	ggttggtttt	60
actacacget gaagaccact	gggteetget	tgtteeteat	caacatccac	aggaataatt	120
gcctggctgt gagctggagt	tastagatas	eteteggeea	ccacctctcc	atcttcttgg	180
acgatgtett ceateteatt tettgeegaa agteattete	stastatas	gergeaaaet	getgetetee	tggctgcaga	240
atottogcat tottattoto	gasttatta	teatetggat	gatggtgatt	gttgtcgtgg	300
atgttggcat tgttattctg	ggtattatta	cogleatige	tggagttetg	gtgctaacaa	360
gagetgatga aacaccaatt	tagaster	cactcagacc	aactcgagca	caacccttgg	420
gtggttcacg aaacatctga	tocagugaaa	taaacctagg	ctgggtaata	attcaataaa	480
ctggccaaaa gagtccagct	ccaaagcatg	gcacegtaet	angttgatat	caaccaatcg	540
agtccatctt gagtggtctg	agatecaatt	grarggggtt	gtgtanatga	nggcaattgt	600
aaattgccaa gatattttga	tacaggaaaa	aacttcaatg	gactgctttc	atccctatat	660
cantgatgat accaaggatt	tatnnass-	ccaagccaaa	accaatactt	naacaagatt	720
cgcaataacc attctgctcc	rgrinicaaaa	actcaatcct	acaatatcct	aaaatnaaag	780
ggnttcaaaa ctgggggaaa	accccnaaat	tcctgccaat	cctttagggg	aaaaaaaag	840
acaccaatcc tttgggttaa	yggaaaggnt	ggattengaa	actttcaagt	taaccttang	900
ggcaaacaan ttaangnatt	aagggtaacc	aaananttta	aatttcaaag	nngcaatttt	960
ttgcaancnt nccaaaanaa	acanggttgn	aaaattttct	aaaaccaacc	tgatttncaa	1020
aatggtcttt aaaaaaaatt	Luggntnaaa	accttcaaag	gaaaagggaa	cccaaccaan	1080
tttcaaannn nttccaaant	Lingtit.				1100

```
<210> 20
      <211> 484
      <212> DNA
      <213> Homo Sapiens
      <400> 20
acctgaaagc aagcccatta tgacaagctc agaggctttt gaacctccaa aatatttaat
                                                                       60
gettggteaa caggeagtag gtggagttee catteageet teegtaagga etcagatgtg
                                                                      120
gettacagag cagetgegga caaateettt ggaaggtaga aatacagagg attettacag
                                                                      180
tttagctcct tggcaacagc agcaaattga anactttcga caaggaagtg aaacaccaat
                                                                       240
geaggttttg actggateat etegteaaag ttatteacet ggetateagg attteagtaa
                                                                      300
gtgggaaten atgttgaaaa tnaaagaagg acttetaagg cagaaagaaa ttgtantega
                                                                      360
teggeagaag caacnaatta eccacetgen tnanangata agggataatg aattacegge
                                                                      420
tenneatgee atgttaggae attatgtnaa ttgtgaggat tettatgtgg etagtttgea
                                                                      480
ccac
                                                                      484
      c210> 21
      <211> 355
      <212> DNA
      <213> Homo Sapiens
      <400> 21
cttccaagtt gctcttatca ggtactgctg atggtgcaga cctcaggaca gtagatccag
                                                                       60
aaacacaggc tagactggaa gctttactag aagctgcagg aataggaaaa ttgtccacgg
                                                                      120
ctgatggtaa agcctttgca gatcctgaag tacttcggag gttgacatcg tctgttagtt
                                                                      180
gtgcgttgga tgaanctgct gctgcactta cccgtatgag agctgaaagc acagcaaatg
                                                                      240
cagggcagtc ggacaaccgc agtttggcng aagcctgttc anaaggagat qtaantqctq
                                                                      300
tgcgaaagtt actcattgaa gggcgaagtg tatttgaact cccnqaqqaa qqqqa
                                                                      355
     <210> 22
      <211> 1070
      <212> DNA
      <213> Homo Sapiens
      <400> 22
atqaaaaaqa acaqqataaa ccacctaatt tggttctgaa agataaagta aagcccaaac
                                                                       60
aggatacaaa atacgatctt atattagatg agcaggccga agactcaaaa tcaagtcact
                                                                      120
cacacacaag tnaaaaacac aagaagaaaa cccatcactg ttctgaagag aaagaagatg
                                                                      180
aggactacat gccaatcaaa aatactaatc aggatatcta tagagaaatg gggtttggtc
                                                                      240
actatgaaga agaagaaagc tgttgggaga aacaaaagag tgaaaagaga gaccgaactc
                                                                      300
agaaccgaag tcgtagccga tctcgagaga gggatggcca ttatagtaat agtcataaat
                                                                      360
caaaatacca aacagatctt tatgaaagag aaaggagtta aaagagagac cgaagcagaa
                                                                      420
gtccnaagaa gtccnaagat aaagaaaaat ctaagtntng atgaaagatg aagaggcaga
                                                                      480
attgagaggc taacatattt actottgtot aacttaagag tgccaggaaa gcagatgott
                                                                      540
agattttgtg tccaagcttg ttatttttt canactagga ttatggtctt tagattaata
                                                                      600
cngatnatat agagcacgga aagataaaga attgaacatt ttcttngtat acttttttac
actaatttca ttgctatacn taaanggtag tnttcatttt ctgaagtcta acattttcac
                                                                      720
tctttttttta atgnagtatt tcatactaca aaaatacatn nacgtatata taaagggata
                                                                      780
ataaangtan atatntgtgt antcatcagc cagcttaaga tacagatgtt gtcgacattt
                                                                      840
tagaagttcc ctaaggccct ctccctctca aataattatt tggaattttg tgtttgtcat
                                                                      900
ttgtctatta tagttttaca acanacgtat gtatntgtaa gtgaaatgtt aantttgtat
                                                                      960
gtttctgaat tttatataaa tggcaaaang tttacttntg tgactttctt tcatttttat
                                                                     1020
```

<210> 23

tgntanatag tattatataa atatactaca acttattcat ttcttgatgg

```
<211> 861
      <212> DNA
      <213> Homo Sapiens
      <400> 23
gaaagaccca ggagaagccg cccaaagaac tggtcaatga gtggtcattg aagataagaa
                                                                       60
aggaaatgag agttgttgac aggcaaataa gggatatcca aagagaagaa gaaaaagtga
                                                                      120
aacgatetgt gaaagatget gecaagaagg gecagaagga tgtetgeata gttetggeea
                                                                      180
aggagatgat caggtcaagg aaggctgtga gcaagctgtn tgcatccaaa gcacacatga
                                                                      240
actcagtgct catggggatg aagaaccagc tcgcggtctt gcgagtggct ggttccctgc
                                                                      300
agaagagcac agaagtgatg aaggccatgc aaagtcttgt gaagattcca gagattcagg
                                                                      360
ccaccatgag ggagttgtcc aaagaaatga tgaaggctgg gatcatagag gagatgttag
                                                                      420
aggacacttt tgaaagcatg gacgatcagg aagaaatgga ggaagaagca gaaatggaaa
                                                                      480
ttgacagaat tctctttgaa attacagcag gggccttggg caaagcaccc agtaaagtga
                                                                      540
ctgatgeeet tecagageea gaaceteeag gagegatgge tgeeteagag gatgaggagg
                                                                      600
aggaggaaga ggntttggag gccatgcagt cccggctggc cacantccgc agctaggggc
                                                                      660
tgccnacccc gctgggtgtg cacacactcc tntcaagagc tgccatttta tgtgtntctt
                                                                      720
gcactacacc tetgttgtga ggactaccat tttggagaag gttetgtttg tetettttea
                                                                      780
ttctctgccc aggttttggg atcgcaaagg gattgttctt ataaaagtgg cataaataaa
                                                                      840
tgcatcattt ttaggagtat a
                                                                      861
     <210> 24
      <211> 985
      <212> DNA
      <213> Homo Sapiens
      <400> 24
agggeteeeg ggaagaaaca etggeatttg teeetttget teggettetg gaggeagana
                                                                       60
ctctgagccc agggagagcc ttctgcagcc ccatttcctc aaaaatccaa cctgcccagg
                                                                      120
tggcgggtca tgagctgtgc tcaggaagct ggaatctgac cctggtggcg tcgggcccag
                                                                      180
totocatggc ageogageat ttattacccg ggcctccacc cagcttggca gactttanac
                                                                      240
ttgaggctgg aggaaaggga actgaacgcg gttctgggag cagcaagccc acgggtagca
                                                                      300
geggaggeec cagaatggee agttintite ceaagaceaa atttaatgag tacaaggatg
                                                                      360
ttetteeetg tatgacaage ageagagggg aagataaaag ceacegaett eatggtggee
                                                                      420
atgaggtgcc tgggggccag cccgacgcca ggggaggtgc ageggcacct gcagacccac
                                                                      480
gggatagacg gaaatggaga gctggatttc tccacttttc tgaccattat qcacatgcaa
                                                                      540
ataaaacaag aagacccaaa gaaagaaatt cttctagcca tgttgatggt ggacaaggag
                                                                      600
aagaaaggtt acgtcatggc gtccgacctg cggtcaaaac tcacgagtnt gggggagaag
                                                                      660
ctcacccaca aggaagtgga tgatcttttc agggaagcag atatcgaacc caatggcaaa
                                                                      720
gtgaagtatg atgaatttat ccacaagatc accettnetg gaegggacta ttgaaggagg
                                                                      780
agaatgggag agcctcccct gggcctgaaa acttggagca attaattttt tttaaaaagt
                                                                      840
gttettttca ettgggagag atggcaaaca cagtggcaag acaacattac ccaactatag
                                                                      900
aagagagget aactagcaac aataatagat gatttcagec atggtatgag tagatettta
                                                                      960
ataaaagatt tgtattgatt ttatt
                                                                      985
     <210> 25
      c211> 545
      <212> DNA
      <213> Homo Sapiens
      <400> 25
ctctctgctg catgcactat tgctgtaagt cttgctggaa tgagtacctg acaactcgga
                                                                       60
tegageagaa cettgttttg aattgeacet geeceattge egactgeece geecageeca
                                                                      120
coggagoett cattogtgec atogteteet egecagaggt catetecaag tatganaagg
                                                                      180
```

cgctcctgcg tggctatgtg gagagctgct ccaacctgac ctggtgcacc aacccccagg

480

502

getgegaceg eateetgtge egecagggee tgggetgtgg ga getgggeete ttgetteaac tgtagettee etgaggeaca et atatgtetea gtgggtegat gaeggtgget actatgaegg ea neaageacet ggecaagete ateteeaage getgteecag et anaacgaagg gtgeetgeac atgaeetgtg ecaaatgtaa ee geete	taccctgct agctgtggcc 360 atgagcgtg gaggcgcana 420 tgtcaggct cccatcgaga 480				
<210> 26 <211> 374 <212> DNA <213> Homo Sapiens					
<400> 26					
gggaaaaggg cetecacatt gateagetgg tttgtetggt ge	ctggaggcc tgncagaagg 60				
gtccaaatcc tcctggaacc ctgggccaca ctgttgctgg gg canatgtcct ctcttgcntc ctgcacctct taagccaggg ct	ggtgtggcc tgtaccacta 120				
accggcccca aatcctgatg tatgccgctc catancccat gg	tacntgaaa cngcgtgatn 180				
cacatntene tttetgtgge agccanagee aaacetecca ne	gggccctgc cggggtcntg 240 cccnccca aaacctgtgg 300				
ctaccetgnn atctctacan ctgccttgcn ngccgcttcn tn	nancencea etaaaatnta 360				
acggttgatt aacc	374				
<211> 552 <212> DNA <213> Homo Sapiens					
<400> 27					
cacaaacctt gcaatccaag ggaaaaggag cgaatccaaa at	tgcaggagg cagcgtgatg 60				
atacaacgtg ttaatggttc attagcagta tctcgtgctc tg	gggggacta tgattacaag 120				
tgtgttgatg gcaagggccc aacagaacaa cttgtttctc ca	agagcctga ggtttatgaa 180				
attttaagag cagaagagga tgaatttatc atcttggctt gt atgagtaatg aggagctctg tgaatatgtt aaatctaggc tt	tgatgggat ctgggatgtt 240				
gaaaatgtgt gcaattgggt agtggacact tgtttacaca ag	tgaggtatc tgatgacctg 300				
agtattgtac tagtttgctt ttcaaatgct cccaaggtct ca	gggaagtcg agataacatg 360 agatgaagc ggtgaaaaaa 420				
gattcagagt tggataagca cttggaatca cgggttgaag an	nattatgga gaatctggcg 480				
aagaangaat gootgatott goocatgtoa tgogoatott gt	tetgeagaa aatateecaa 540				
atttgcctcc tg	552				
<210> 28 <211> 502 <212> DNA <213> Homo Sapiens					
<400> 28					
ctgacctgcc cacactggaa gaccatcaga agcagagcca gc	cagettaag gattetgagt 60				
tgaagagcac agagctgcag gagaaagtga ctgagctgga ga	agtttgctg gaggagaccc 120				
aggcaatctg cagagagaag gagattcaac tggaaagcct ga	aggcagaga gaagcagaat 180				
totoctocgo tggacatago otgcaagata aacagtotgt gg	gaggagacc agtggagaag 240				
gtccagaagt ggaaatggag tcctggcaga agcgatacga tt	tcgctccaa aagattgtgg 300				
agaagcagca gcagaagatg gatcagttgc gctcacaagt no	cagageeta gageaggaag 360				
tggetenaga agaaggaaca agecaggeee tgagagagga gg	gcccagcga agggattcag 420				

agaagaatet gacactecag ga <210> 29

ccctgcagca gctgcgcaca gccgtgaagg anctttcagt gcnaaaccag gacttgattg

1980

2040

```
<211> 537
      <212> DNA
      <213> Homo Sapiens
      <400> 29
gctttgggga ctcagtggac tgctctgact gctggcttcc ggtggtgaaa ttcatcgagg
                                                                       60
agcaatttga gcagtacctt agggatgaga gtggcctgaa ccggaagaac atccaggact
                                                                      120
eccgagteca etgetgeete taetteatet eaccettegg eegggggete eggeeeetan
                                                                      180
atgtggcctt ceteegggca gtacacgana aagtcaacat cateecagte attggcaaag
                                                                      240
cggatgetet gatgeeccag gaaacccagg ceetcaagca gaagateegg gateagttga
                                                                      300
aggaagagga gatccacate taccagttee eegaatgtga etetgatgaa gatgaagaet
                                                                      360
tcaagaggca ggatgcagan atgaaggaaa gcatcccttt tgcagtcgtg ggatcatgcc
                                                                      420
aagtggtgag ggatggcggg aaccggccgg tgaggggacg ccgctactcc tgggggaacg
                                                                      480
tggaagtgga naaccacatc nctgcgattt cctgaacctg cgacggatgc tggtqca
                                                                      537
      <210> 30
      <211> 3872
      <212> DNA
      <213> Homo Sapiens
      <400> 30
ccattgcaca cagacaggca gcatggctag caaacgaaaa tctacaactc catgcatqqt
                                                                      60
toggacatca caagtagtag aacaagatgt goocgaggca agtagacagg gocaaagaga
                                                                      120
aaggaatcgg cacaccacag cctgacgtgg ccaaggacag ttgggcanca gaacttgaaa
                                                                      180
actottccaa agaaaacgaa gtgatagagg tgaaatctat gggggaaagc cagtccaaaa
                                                                      240
aactecaagg tggttatgag tgcaaatact geceetacte cacgcaaaac etgaacgagt
                                                                      300
tcacggagea tgtcgacatg cagcatccca acgtgattct caaccccctc tacgtgtgtg
                                                                      360
cagaatgtaa cttcacaacc aaaaagtacg actccctatc cgaccacaac tccaagttcc
                                                                      420
atcccgggga ggccaacttc aagctgaagt taattaaacg caataatcaa actgtcttgg
                                                                      480
aacagtccat cgaaaccacc aaccatgtcg tgtccatcac caccagtggc cctggaactg
                                                                      540
gtgacagtga ttctgggatc tcggtgagta aaacccccat catgaagcct ggaaaaccaa
                                                                     600
aageggatge caagaaggtg cecaagaage cegaggagat caccecegag aaccaegtgg
                                                                     660
aagggaccgc cegectggtg acagacacag ctgagatect ctcgagacte ggeggggtgg
                                                                     720
agetecteca agacacatta ggacacgtea tgeettetgt acagetgeca ecaaatatea
                                                                     780
accttgtgcc caaggtccct gtcccactaa atactaccaa atacaactct gccctqqata
                                                                     840
caaatgccac gatgatcaac tctttcaaca agtttcctta cccgacccag gctgagttgt
                                                                      900
cctggctgac agctgcctcc aaacacccag aggagcacat cagaatctgg tttgccaccc
                                                                      960
agegettaaa gcatggcatc agetggteee cagaagaggt ggaggaggee eggaagaaga
                                                                     1020
tgttcaacgg caccatccag tcagtacccc cgaccatcac tgtgctgccc gcccagttgg
                                                                    1080
cccccacaaa gatgacgcag cccatcctcc agacggctct accgtgccag atcctcggcc
agactageet ggtgctgact caggtgacca gegggtcaac aaccgtetet tgctcccca
                                                                     1200
tcacacttgc cgtggcagga gtcaccaacc atggccagaa gagacccttg gtgactcccc
                                                                     1260
aagetgeeee egaacceaag egteeacaca tegeteaggt gecagageee ecacecaagg
                                                                     1320
tggccaaccc cccgctcaca ccagccagtg accgcaagaa gacaaaggag cagatagcac
                                                                     1380
atctcaagge cagetttete cagagecagt teeetgaega tgeegaggtt taeeggetea
                                                                     1440
tcgaggtgac tggccttgcc aggagcgaga tcaagaagtg gttcagtgac caccgatatc
                                                                    1500
ggtgtcaaag gggcatcgtc cacatcacca gcgaatccct tgccaaagac cagttggcca
                                                                    1560
tegeggeete eegacaeggt egeacgtate atgegtacee agaetttgee eeccagaagt
                                                                    1620
tcaaagagaa aacacagggt caggttaaaa tcttggaaga cagctttttg aaaagttctt
                                                                    1680
ttcctaccca agcagaactg gatcggctaa gggtggagac caagctgagc aggagagaga
                                                                    1740
tegactectg gtteteggag aggeggaage ttegagacag catggaacaa getgtettgg
                                                                    1800
attccatggg gtctgggcaa aaaaggccaa gatgtgggaa gcccccaatg gtgctctgtc
tegactegaa cageteteeg gtgcccagtt aacaagttet etgeceagee ettegecage
```

aatttgcaaa aagtcaagaa cangttcatc tootgaagga gcacgtttgc aanaaaccca

nttgggctac tccccangag taacgaccag tttaaccggg ccaagancng gnctgggtcc

```
cqaactgaaa attgtgcntt tgggttcang gngaacaaga nngcttncen gaaaacgggg
                                                                     2100
aaccgttaaa attggnttgg agcaaatnnc aagnaaccaa gcccaatggg caaaattgnt
                                                                     2160
caacgggtta ccnaatgccg nttcnaaggg aaanncaaca aanacccaan ggccgganan
                                                                     2220
gcccaaagaa acgggggntt aatgttggtt cccacaatta ttacaaggga cccccaaaaa
                                                                     2280
agetettgeg aaggaggaet ttgganaaan tttgttgaee agggtaaaan tagggeaggg
                                                                     2340
acccagcaaa aagactgttt teecagcaaa geeetteaga ggeeacette agaccgttea
                                                                     2400
gagggcagca gccgggacgg ccagggtagc gacgagaacg aggagtcgag cgttgtggat
                                                                     2460
tacgtggagg tgacggtcgg ggaggaggat gccatcttca gatagatcag atagctggag
                                                                     2520
tcaggntgcg gcagaaggtg tgtcggaact ggctgaatca gactccgact gcgtccctgc
agaggetgge caggeetaga cagggaagte tgttagaact getgtgetga teaacgggae
                                                                     2640
getecgtett tgaagaaaga agagatggte tetecceage catgggeeae cettgecagt
                                                                     2700
gactccaagt ggaactactt agctcgcgtg tgcctggagg gtgcggggaag tccagcgact
                                                                     2760
ctcagacgca cctcccagag gaccggtggg aattgttcat agtgccaaag tcctactact
                                                                     2820
gegttttcaa tgggteettg tacatagttt geteetetge cetagecete acetettget
                                                                     2880
atactggaac cgatttgtac aatgtgggaa ttttgttacc tttttaatca agggcaactt
                                                                     2940
cettttccag cactaccatt gtaaggtttt tttcaggagg gagggctaac caccttgctt
                                                                     3000
ttetetttte tettttett tttttattt ttgttttatt aatttgggga aaggggtgtt
                                                                     3060
agcattagtg ccatgatatc tactggattt taagtaggga gactttattt ttaaaggtag
                                                                     3120
gttgaaattt gggagattte teggeaggaa gggetgaaat ceaggeecet gteteaactt
                                                                     3180
ggagagaggt gacagacggc agatetteca aatcaaatte etttecagtt etteceetgg
                                                                     3240
ctgccttttt gggggtccct gccttagccc cacacaaggc tttctgaact gccaagaggg
gatctggctt ctcaactgct cggcctcttg ggccaggctg tgcccagcca gccctgggag
                                                                     3360
aactgggtag caggtggctg acttctttaa gcacctttct aaataccagc agaagaggct
                                                                     3420
cccqcctctg ttagcatgat cagtactatt gtgacattaa aacaacaaca ataagatctt
                                                                     3480
cctatctgga gggtacagag gtgaatgget ttggttttca tttctctttc ttcactgett
                                                                     3540
ttctcggtgt ggtatttgac aagattttag ntnaaagcct caccatgaat tgatttttt
                                                                     3600
tgtttgngng ngtgtttgtt ttgggacaat tttagatacc tgngtgcant ttttcagtta
                                                                     3660
gtectaantt ttaaaagaag ggnaaccaag nganatattt ggtgtaagtg ttgcagtatg
                                                                     3720
aanttctggt tgcaatccct ccccgtccca cantgccccc catttgagta caccgcacaa
                                                                     3780
gtcaaacgnt aggnagtttg nataaaacca atttttctaa nttgttgntc atttgttgta
                                                                     3840
antcaataaa gcnaaganta aacattttta tt
                                                                     3872
     <210> 31
      <211> 655
      <212> DNA
      <213> Homo Sapiens
      <400> 31
gaaatcatgg gagcacaaag aagaaataag tgaagcagag ccagggggtg gttccttggg
                                                                       60
agatggaagg ccgccagagg aaagtgccca tgaaatgatg gaggaggaag aggaaatccc
                                                                      120
aaaacctaag tctgtggttg caccgccagg tgctcctaag aaagagcatg taaatgtagt
                                                                      180
attcattggg cacgtanatg ctggcaagtc aaccattgga ggacaaataa tgtatttgac
                                                                      240
tggaatggtt gacaaaagga cgcttgaaaa gtatgaaaga gaagctaaag agaaaaacag
                                                                      300
agaaacttgg tacttgtctt gggccttaga cacaaatcag gaagaacgag acaagggtaa
                                                                      360
aacagtagaa gtgggtcgtg cctattttga aaccgaaaag aacatttcac aattctagat
                                                                      420
atgaatccca gaacactgag ctcaaaaccc aaagcccaga atttgaagct caaagttccn
                                                                      480
aattccanga aggtgcggag atgcttctga accccgagga aaagatcctt tgaatatctc
                                                                      540
cgtaggagtt cacccctgg actccttcac tcaggggttt ggggagcacc cacaggggac
                                                                      600
ctgcccatag ggccaccttt tgagatgccc acaggggccc tgctgtctac accgc
                                                                      655
      <210> 32
```

<210> 32

<211> 466

<212> DNA

<213> Homo Sapiens

ttcctaagcc tctgattgc

.400: 30					
<400> 32 gaaaggtggc cagaggaagg	an anaat an a	at annua			
acaagagcgt ctgtgagctg	gacagetgae	gaggatet	ergggerrga	agggggcaca	60
accttcctga agacctgctc	gcacactgca	tecettacea	tgagttggag	atastasas	120 180
atteggeacg agetegtgee	gaattcggca	caaaaaaaaa	actactccca	genetagana	240
caggaggacc tgctggagga	gcagaaggat	agaacccaaa	canconctot	gagaaggaa	300
aagaaaggcc tcatggggcc	actgaccgaa	ctggacacta	aagatgtgga	taccetacta	360
aagaagtctg aggcccagca	tgaacagccg	gaagatggat	acceptita	taccetaca	420
cagcgcctcc tgcaggccct				ogococgacg	466
<210> 33					
<211> 293					
<212> DNA					
<213> Homo Sapi	ens				
<400> 33					
gtcggcgccc tacatgagaa	gcatgatgca	gtcgctgagc	cagaatccag	atttggctgc	60
acagatgatg ctgaatagcc	cgctgtttac	tgcaaatcct	cagctgcagg	agcagatgcg	120
gccacagete ecageettee	tgcagcagat	gcagaatcca	gacacactat	cagccatgtc	180
aaacccaaga gcaatgcagg	ctttaatgca	gatccagcag	gggctacaga	cattagccac	240
tgaagcacct ggcctgattc	cgagetteac	tccaggtgtg	ggggtggggn	tet	293
<210> 34					
<211> 456					
<212> DNA					
<213> Homo Sapi	ens				
<400> 34					
caaagcctta agtcagagcc	tgctagaatg	tqtccaqqtt	tacagetata	ctgcacagca	60
cttcccatgc tagtctctgt	aaaacqcaaa	aaqccatttt	caggaggagt	aggcaagtca	120
cattcaattg aaatgcagga	tggtgcactg	ccattccaag	ttccatcttc	ctqqcaqatc	180
agcacagggt tccccagaag	ttcatatcct	ggattacagg	tgtatgaaac	catggtacca	240
tacagaaagt ttgatgaatg	tgtagcagga	gactcctttg	tattttccca	ggttttagcc	300
actgctccca aatgataagg	agggtgagga	gtcacatatg	gaacttccat	catqtcqtct	360
tcttgctcaa aatatccctg	gtcatctttg	agtttagtac	agtctccaaa	atctatatga	420
ggagggaggc cacagtctat	tggcatacca	aatttt			456
<210> 35					
<211> 679					
<212> DNA					
<213> Homo Sapi	ens				
<400> 35					
ggcggcgttc gtgtccgagg	tcactagttt	cccggtagtt	caqctqcaca	tgaatagaac	60
agcaatgaga gccagtcaga	aggactttga	aaattcaata	aatcaaqtqa	aactcttgaa	120
aaaggatcca ggaaacgaag	tgaagctaaa	actctacgcg	ctatataagc	aggccactga	180
aggacettgt aacatgeeca	aaccaggtgt	atttgacttg	atcaacaagg	ccaaatggga	240
cgcatggaat gcccttggca	gcctgcccaa	ggaagctgcc	aggcagaact	atgtggattt	300
ggtgtccagt ttgagtcctt	cattggaatc	ctctagtcag	gtggagcctg	gaacagacag	360
gaaatcaact gggtttgaaa	ctctggtggt	gacctccgaa	gatqqcatca	caaaqatcat	420
gttcaaccgg cccaaaaaga	aaaatgccat	aaacactgag	atgtatcatg	aaattatgcg	480
tgcacttaaa gctgccagca	aggatgactc	aatcatcact	gttttaacag	gaaatggtga	540
ctattacagt agtgggaatg	atctgactaa	cttcactgat	attccccctq	gtggagtana	600
ggagaaagct aaaaataatg	ccgttttact	gaagggaatt	tgtgggctgt	tttatagaat	660

<400> 39

```
<210> 36
      <211> 689
      <212> DNA
      <213> Homo Sapiens
      <400> 36
ctaaaccagt ggacatatca ggccatggtc cacgaactac taggcataaa caacaatcgg
                                                                       60
attgatcttt ccagagtgcc gggaatcagt aaagacttaa gagaagtggt cctatctgct
                                                                      120
gaaaatgatg aattetatge taataatatg tacetgaact ttgetgagat tqqtaqeaat
                                                                      180
ataaagaatc tcatggaaga ttttcagaag aagaaaccaa aagaacagca aaaactagaa
                                                                      240
tcaatagcag acatgaaggc gtttgttgag aattatccac agttcaagaa aatgtctggg
                                                                      300
actgtttcaa agcatgtgac agtggttgga gaactgtctc gattggtcag tgaacggaat
                                                                      360
ctgctggagg tttcagaggt tgagcaagaa ctggcctgtc aaaatgacca ttctagtgct
                                                                      420
ctccagaata taaaaaggct tctgcagaac cccaaagtga cagagtttga tgctgcccgc
                                                                      480
ctggtgatgc tttatgcttt acattatgag cgacacagca gcaatagcct gccaggacta
                                                                      540
atqatggncc tcaggaataa aggtgtttct gagaagtatc gaaagctcgt gtctgcagtt
                                                                      600
gttgaatatg gtggtaaaac gagtcagagg aagtgacctc ctcagcccca aagatqctqt
                                                                      660
tggctatcac caaacaattc ctcaaaggg
                                                                      689
      <210> 37
      <211> 443
      <212> DNA
      <213> Homo Sapiens
      <400> 37
ccaegecegg ecceggagea ggettttacg catgeceege gegeeeeett gtgteeggaa
tttattcctt ccggtgggtt cgcggtctag ctgaccaaga acggaactgg ggactttcqc
                                                                      120
agtgagagtt acagetetta aagatggeac egaceeagge egggegeggt ggeteaggee
                                                                      180
tgcaatccca gcactttggg aggcggaggc aggtgaatca cgaggtcagg aaatcgagac
                                                                      240
catectggct aacatggtga aaccccgtct ccactaaaaa tacaaaaaat tagccaggca
                                                                      300
tggtggctgg cacctgtagt cccagctact tgggaggctg agccaggaaa gtggcatgaa
                                                                      360
cccgcgaggc agagettgca ataagecgag atcgtgccaa tgcactccag cctgggcaac
                                                                      420
agaaggagac actgtctcaa aaa
                                                                      443
      <210> 38
      <211> 442
      <212> DNA
      <213> Homo Sapiens
      <400> 38
ctegectegg ageagecatg atggaaggee tggacgaegg eceggaette eteteagaag
aggaccgcgg acttamagcm atamatgtag atcttcmaag tgatgctgct ctgcaggtgg
                                                                      120
acatttctga tgctcttagt gagcgggata aagtaaaatt cactgttcac acaaagattc
                                                                      180
caccagcacc accaagacct gattttgatg cttcaaggga aaaactacag aagcttggtg
                                                                      240
aaggagaagg gtcaatgacg aaggaagaat tcacaaagat gaaacaggaa ctggaagctg
                                                                      300
aatatttggc aatattcaag aagacagttg cgatgcatga agtgttcctg tgtcgtgtgg
                                                                      360
cagcacatcc tattttgaga agagatttaa atttccatgt cttcttggaa tataatcaag
                                                                      420
atttgagtgt gcgaggaaaa aa
                                                                      442
      <210> 39
      <211> 692
      <212> DNA
      <213> Homo Sapiens
```

cagggacagg	ccctatctta	tattttttc	catcttcatc	atccacttct	gcttacagtt	60
tgctgcttac	aataacttaa	tgatggattg	agttatctgg	gtggtctcta	gccatctggg	120
	ctgtctaacc					180
taacagagct	cctcagataa	tcttcacaca	catgtaactg	ctggagatct	tattctatta	240
	acgagaagtt					300
ataacccagc	ttttcctttt	ggcttttagc	ccattcagac	tttgccagag	tcaagccaag	360
gattgctttt	ttgctacagt	tttctgccaa	atggcctagt	tcctgagtac	ctggaaacca	420
gagagaaaga	ggatccagga	tgtacttgga	tgaggaggcc	tggcttatct	aggaagtcgt	480
gtctggggtg	cttattgctg	ctccatacag	ctgtacgtca	gccccttggc	cttctctgta	540
ggttcttggc	ancaatgagc	agctttcact	caagtgacac	aagtaattac	tgagtcctaa	600
	accaactgta					660
	tttaattacc					692
<210:	> 40					
<211:	> 619					
<212	> DNA					
<213:	> Homo Sapi	ens				
<400:	> 40					
gaggcaccag	attctgctga	ggggaccacc	cttacagtgc	tgcctgaagg	tgaggagttg	60
cccctgtgtg	tgagtgagag	caatggcctg	gagctcccac	cctcagcagc	atctgatgag	120
ccacttcagg	agccactgga	ggctgacagg	acctcggaag	agctgacaga	ggccaagacc	180
ccaacctcca	gcccagagaa	gccacaggaa	ctcgttacag	ctgaggttgc	agctccatcc	240
acctcatctt	cagccacttc	ctcgcctgag	ggtccttcac	ctgcccgacc	tcctcggcgt	300
cgcaccagtg	ctgatgtgga	aattaggggt	caagggactg	gtcggccagg	acaaccacca	360
ggccccaaag	tgcttcgaaa	gctgccagga	cggctggtaa	ctgtggtaga	ggaaaaggaa	420
	ggcggcggca					480
	gccagcccgg					540

<213> Homo Sapiens

<400> 41

Pro Glu Ser Lys Pro Ile Met Thr Ser Ser Glu Ala Phe Glu Pro Pro 10 Lys Tyr Leu Met Leu Gly Gln Gln Ala Val Gly Gly Val Pro Ile Gln 20 25 Pro Ser Val Arg Thr Gln Met Trp Leu Thr Glu Gln Leu Arg Thr Asn 40 Pro Leu Glu Gly Arg Asn Thr Glu Asp Ser Tyr Ser Leu Ala Pro Trp 60 Gln Gln Gln Gln Ile Glu Phe Arg Gln Gly Ser Glu Thr Pro Met Gln 70 75 Val Leu Thr Gly Ser Ser Arg Gln Ser Tyr Ser Pro Gly Tyr Gln Asp 90 Phe Ser Lys Trp Glu Ser Met Leu Lys Lys Glu Gly Leu Leu Arg Gln 100 105 Lys Glu Ile Val Asp Arg Gln Lys Gln Ile Thr His Leu Ile Arg Asp 120 Asn Glu Leu Pro Ala His Ala Met Leu Gly His Tyr Val Asn Cys Glu 135 140

coctoccatt ggtgggccct gtgaaagctg ctccttcatc cncactgenc actccanccc

600

Asp Ser Tyr Val Ala Ser Leu His His 150

<210> 42

<211> 95 <212> PRT

<213> Homo Sapiens

<400> 42

Ile Leu Leu Glu Phe Tyr Leu Trp Gln Ile Gly Arg Tyr Ile Phe Val His Val Asn Asn His Ile Tyr Ile Lys Leu Tyr Asn Cys Thr Phe Leu 25 Thr Ala Leu Ser Gln Val Ala Leu Ser Phe Pro Ser Ile Asn Gly Leu 4.0 Ile Phe Val Ser Phe Ala Phe Phe Arg Val Val Asn Ser Tyr Cys Pro 55 Leu Gln Phe Val Gln Phe Leu Arg Cys Leu Leu Leu Lys Arg Met

70 75 Leu Gly Glu Phe Ile Phe His Lys Glu Met Glu His Tyr Leu Lys

<210> 43

<211> 114 <212> PRT

<213> Homo Sapiens

<400> 43

Ser Lys Leu Leu Ser Gly Thr Ala Asp Gly Ala Asp Leu Arg Thr Val Asp Pro Glu Thr Gln Ala Arg Leu Glu Ala Leu Leu Glu Ala Ala 20 25 Gly Ile Gly Lys Leu Ser Thr Ala Asp Gly Lys Ala Phe Ala Asp Pro 40 Glu Val Leu Arg Arg Leu Thr Ser Ser Val Ser Cys Ala Leu Asp Glu 55 60 Ala Ala Ala Leu Thr Arg Met Arg Ala Glu Ser Thr Ala Asn Ala Glv 70 Gln Ser Asp Asn Arg Ser Leu Ala Glu Ala Cys Ser Gly Asp Val Ala 90 Val Arg Lys Leu Leu Ile Glu Gly Arg Ser Val Phe Glu Leu Pro Glu 105

<210> 44 <211> 132

Glu Gly

<212> PRT

<213> Homo Sapiens

<400> 44

Gly Glu Lys Glu Gln Asp Lys Pro Pro Asn Leu Val Leu Lys Asp Lys 5 10 Val Lys Pro Lys Gln Asp Thr Lys Tyr Asp Leu Ile Leu Asp Glu Gln 25

Ala Glu Asp Ser Lys Ser Ser His Ser His Thr Ser Lys His Lys Lys 40 Lys Thr His His Cys Ser Glu Glu Lys Glu Asp Glu Asp Tyr Met Pro 55 60 Ile Lys Asn Thr Asn Gln Asp Ile Tyr Arg Glu Met Gly Phe Gly His 70 Tyr Glu Glu Glu Ser Cys Trp Glu Lys Gln Lys Ser Glu Lys Arg 85 90 Asp Arg Thr Gln Asn Arg Ser Arg Ser Arg Ser Arg Glu Arg Asp Gly 105 His Tyr Ser Asn Ser His Lys Ser Lys Tyr Gln Thr Asp Leu Tyr Glu 120 Arg Glu Arg Ser 130

<210> 45 <211> 214 <212> PRT <213> Homo Sapiens

<400> 45

Lys Thr Gln Glu Lys Pro Pro Lys Glu Leu Val Asn Glu Trp Ser Leu 5 10 Lys Ile Arg Lys Glu Met Arg Val Val Asp Arg Gln Ile Arg Asp Ile 20 Gln Arg Glu Glu Lys Val Lys Arg Ser Val Lys Asp Ala Ala Lys 40 Lys Gly Gln Lys Asp Val Cys Ile Val Leu Ala Lys Glu Met Ile Arg Ser Arg Lys Ala Val Ser Lys Leu Ala Ser Lys Ala His Met Asn Ser 70 75 Val Leu Met Gly Met Lys Asn Gln Leu Ala Val Leu Arg Val Ala Gly 90 Ser Leu Gln Lys Ser Thr Glu Val Met Lys Ala Met Gln Ser Leu Val 100 105 Lys Ile Pro Glu Ile Gln Ala Thr Met Arg Glu Leu Ser Lys Glu Met 120 Met Lys Ala Gly Ile Ile Glu Glu Met Leu Glu Asp Thr Phe Glu Ser 130 135 Met Asp Asp Gln Glu Glu Met Glu Glu Glu Ala Glu Met Glu Ile Asp 150 155 Arg Ile Leu Phe Glu Ile Thr Ala Gly Ala Leu Gly Lys Ala Pro Ser 170 Lys Val Thr Asp Ala Leu Pro Glu Pro Glu Pro Pro Gly Ala Met Ala 185 Ala Ser Glu Asp Glu Glu Glu Glu Glu Leu Glu Ala Met Gln Ser 200 205 Arg Leu Ala Thr Arg Ser

210

<210> 46 <211> 248 <212> PRT <213> Homo Sapiens

<400> 46 Gly Ser Arg Glu Glu Thr Leu Ala Phe Val Pro Leu Leu Arg Leu Leu 10 Glu Ala Thr Leu Ser Pro Gly Arg Ala Phe Cys Ser Pro Ile Ser Ser Lys Ile Gln Pro Ala Gln Val Ala Gly His Glu Leu Cys Ser Gly Ser 40 Trp Asn Leu Thr Leu Val Ala Ser Gly Pro Val Ser Met Ala Ala Glu 55 60 His Leu Leu Pro Gly Pro Pro Pro Ser Leu Ala Asp Phe Leu Glu Ala 75 Gly Gly Lys Gly Thr Glu Arg Gly Ser Gly Ser Ser Lys Pro Thr Gly 90 Ser Ser Gly Gly Pro Arg Met Ala Ser Phe Pro Lys Thr Lys Phe Asn 105 Glu Tyr Lys Asp Val Leu Pro Cys Met Thr Ser Ser Arg Gly Gly Lys 120 125 Ile Lys Ala Thr Asp Phe Met Val Ala Met Arg Cys Leu Gly Ala Ser 135 Pro Thr Pro Gly Glu Val Gln Arg His Leu Gln Thr His Gly Ile Asp 150 155 Gly Asn Gly Glu Leu Asp Phe Ser Thr Phe Leu Thr Ile Met His Met 165 170 Gln Ile Lys Gln Glu Asp Pro Lys Lys Glu Ile Leu Leu Ala Met Leu 185 Met Val Asp Lys Glu Lys Lys Gly Tyr Val Met Ala Ser Asp Leu Arg 200 Ser Lys Leu Thr Ser Gly Glu Lys Leu Thr His Lys Glu Val Asp Asp 215 Leu Phe Arg Glu Ala Asp Ile Glu Pro Asn Gly Lys Val Lys Tyr Asp 230 235 Glu Phe Ile His Lys Ile Thr Leu 245

<210> 47 <211> 177 <212> PRT <213> Homo Sapiens

<400> 47 Leu Cys Cys Met His Tyr Cys Cys Lys Ser Cys Trp Asn Glu Tyr Leu 1.0 Thr Thr Arg Ile Glu Gln Asn Leu Val Leu Asn Cys Thr Cys Pro Ile 25 Ala Asp Cys Pro Ala Gln Pro Thr Gly Ala Phe Ile Arg Ala Ile Val 4.0 Ser Ser Pro Glu Val Ile Ser Lys Tyr Lys Ala Leu Leu Arg Gly Tyr 55 Val Glu Ser Cys Ser Asn Leu Thr Trp Cys Thr Asn Pro Gln Gly Cys 70 Asp Arg Ile Leu Cys Arg Gln Gly Leu Gly Cys Gly Thr Thr Cys Ser 90 Lys Cys Gly Trp Ala Ser Cys Phe Asn Cys Ser Phe Pro Glu Ala His 105 Tyr Pro Ala Ser Cys Gly His Met Ser Gln Trp Val Asp Asp Gly Gly 115 120 125
Tyr Tyr Asp Gly Met Ser Val Glu Ala Lys His Leu Ala Lys Leu Ile
130 135 140
Ser Lys Arg Cys Pro Ser Cys Gln Ala Pro Ile Glu Asn Glu Gly Cys
145 155 155 160
Leu His Met Thr Cys Ala Lys Cys Asn His Gly Phe Cys Trp Arg Cys
165 170
Leu His Met Thr Cys Ala Lys Cys Asn His Gly Phe Cys Trp Arg Cys
165 170

<210> 48 <211> 102 <212> PRT <213> Homo Sapiens

<400> 48 Glu Lys Gly Leu His Ile Asp Gln Leu Val Cys Leu Val Leu Glu Ala Gln Lys Gly Pro Asn Pro Pro Gly Thr Leu Gly His Thr Val Ala Gly 2.0 25 Gly Val Ala Cys Thr Thr Thr Val Leu Ser Cys Leu His Leu Leu Ser 40 Gln Gly Tyr Lys Arg Asp Arg Pro Gln Ile Leu Met Tyr Ala Ala Pro 55 Pro Met Gly Pro Cys Arg Gly Ala His Phe Cys Gly Ser Ser Gln Thr 70 75 Ser Pro Pro Lys Pro Val Ala Thr Leu Ser Leu Leu Pro Cys Pro Leu 85 90 Pro Pro Leu Lys Asn Gly 100

<210> 49 <211> 179 <212> PRT <213> Homo Sapiens

<400> 49 His Lys Pro Cys Asn Pro Arg Glu Lys Glu Arg Ile Gln Asn Ala Gly Gly Ser Val Met Ile Gln Arg Val Asn Gly Ser Leu Ala Val Ser Arg 25 Ala Leu Gly Asp Tyr Asp Tyr Lys Cys Val Asp Gly Lys Gly Pro Thr 40 Glu Gln Leu Val Ser Pro Glu Pro Glu Val Tyr Glu Ile Leu Arg Ala 55 Glu Glu Asp Glu Phe Ile Ile Leu Ala Cys Asp Gly Ile Trp Asp Val 70 75 Met Ser Asn Glu Glu Leu Cys Glu Tyr Val Lys Ser Arg Leu Glu Val 85 90 Ser Asp Asp Leu Glu Asn Val Cys Asn Trp Val Val Asp Thr Cys Leu 100 105 His Lys Gly Ser Arg Asp Asn Met Ser Ile Val Leu Val Cys Phe Ser 120 Asn Ala Pro Lys Val Ser Asp Glu Ala Val Lys Lys Asp Ser Glu Leu 135

Asp Lys His Leu Glu Ser 1le Met Glu Asn Leu Ala Lys Glu Cys Leu 145 150 150 155 151 161 Leu Pro Met Ser Cys Ala Ser Cys Leu Gln Lys Ile Ser Gln Ile 165 170 170 175

<210> 50 <211> 163 <212> PRT <213> Homo Sapiens

<400> 50

Asp Leu Pro Thr Leu Glu Asp His Gln Lys Gln Ser Gln Gln Leu Lys Asp Ser Glu Leu Lys Ser Thr Glu Leu Gln Glu Lys Val Thr Glu Leu 25 Glu Ser Leu Leu Glu Glu Thr Gln Ala Ile Cys Arg Glu Lys Glu Ile Gln Leu Glu Ser Leu Arg Gln Arg Glu Ala Glu Phe Ser Ser Ala Gly 55 His Ser Leu Gln Asp Lys Gln Ser Val Glu Glu Thr Ser Gly Glu Gly 75 70 Pro Glu Val Glu Met Glu Ser Trp Gln Lys Arg Tyr Asp Ser Leu Gln Lys Ile Val Glu Lys Gln Gln Gln Lys Met Asp Gln Leu Arg Ser Gln 105 Val Gln Ser Leu Glu Gln Glu Val Ala Glu Glu Gly Thr Ser Gln Ala 115 120 Leu Arg Glu Glu Ala Gln Arg Arg Asp Ser Ala Leu Gln Gln Leu Arg 135 Thr Ala Val Lys Leu Ser Val Asn Gln Asp Leu Ile Glu Lys Asn Leu 150 155 Thr Leu Gln

<210> 51 <211> 164 <212> PRT <213> Homo Sapiens

<400> 51

Phe Gly Asp Ser Val Asp Cys Ser Asp Cys Trp Leu Pro Val Val Lys 1

Phe Ile Glu Glu Gln Phe Glu Gln Tyr Leu Arg Asp Glu Ser Gly Leu 25

Asn Arg Lys Asn Ile Gln Asp Ser Arg Val His Cys Cys Leu Tyr Phe 35

Ile Ser Pro Phe Gly Arg Gly Leu Arg Pro Leu Ala Phe Leu Arg Ala So Val His Lys Val Asn Ile Ile Pro Val Ile Gly Lys Ala Asp Ala Leu Cys Cys Leu Tyr Phe 65

Val His Lys Val Asn Ile Ile Pro Val Ile Gly Lys Ala Asp Ala Leu Cys Cys Leu Tyr Phe 65

Met Pro Gln Glu Thr Gln Ala Leu Lys Gln Lys Ile Arg Asp Gln Leu 85

Lys Glu Glu Glu Ile His Ile Tyr Gln Phe Pro Glu Cys Asp Ser Asp

<210> 52 <211> 600 <212> PRT <213> Homo Sapiens

<400> 52 Met Cys Pro Arg Gln Val Asp Arg Ala Lys Glu Lys Gly Ile Gly Thr 1.0 Pro Gln Pro Asp Val Ala Lys Asp Ser Trp Ala Glu Leu Glu Asn Ser 25 Ser Lys Glu Asn Glu Val Ile Glu Val Lys Ser Met Gly Glu Ser Gln 40 Ser Lys Lys Leu Gln Gly Gly Tyr Glu Cys Lys Tyr Cys Pro Tyr Ser 55 60 Thr Gln Asn Leu Asn Glu Phe Thr Glu His Val Asp Met Gln His Pro 70 Asn Val Ile Leu Asn Pro Leu Tyr Val Cys Ala Glu Cys Asn Phe Thr 90 Thr Lys Lys Tyr Asp Ser Leu Ser Asp His Asn Ser Lys Phe His Pro 100 105 Gly Glu Ala Asn Phe Lys Leu Lys Leu Ile Lys Arg Asn Asn Gln Thr 120 Val Leu Glu Gln Ser Ile Glu Thr Thr Asn His Val Val Ser Ile Thr 135 140 Thr Ser Gly Pro Gly Thr Gly Asp Ser Asp Ser Gly Ile Ser Val Ser 150 155 Lys Thr Pro Ile Met Lys Pro Gly Lys Pro Lys Ala Asp Ala Lys Lys 165 170 Val Pro Lys Lys Pro Glu Glu Ile Thr Pro Glu Asn His Val Glu Gly 185 Thr Ala Arg Leu Val Thr Asp Thr Ala Glu Ile Leu Ser Arg Leu Gly 195 200 205 Gly Val Glu Leu Leu Gln Asp Thr Leu Gly His Val Met Pro Ser Val 215 Gln Leu Pro Pro Asn Ile Asn Leu Val Pro Lys Val Pro Val Pro Leu 230 235 Asn Thr Thr Lys Tyr Asn Ser Ala Leu Asp Thr Asn Ala Thr Met Ile 245 250 Asn Ser Phe Asn Lys Phe Pro Tyr Pro Thr Gln Ala Glu Leu Ser Trp 265 Leu Thr Ala Ala Ser Lys His Pro Glu Glu His Ile Arg Ile Trp Phe 280

Ala Thr Gln Arg Leu Lys His Gly Ile Ser Trp Ser Pro Glu Glu Val

Glu Glu Ala Arg Lys Lys Met Phe Asn Gly Thr Ile Gln Ser Val Pro

```
310
                                      315
Pro Thr Ile Thr Val Leu Pro Ala Gln Leu Ala Pro Thr Lys Met Thr
             325
                                  330
Gln Pro Ile Leu Gln Thr Ala Leu Pro Cys Gln Ile Leu Gly Gln Thr
                              345
Ser Leu Val Leu Thr Gln Val Thr Ser Gly Ser Thr Thr Val Ser Cys
                           360
Ser Pro Ile Thr Leu Ala Val Ala Gly Val Thr Asn His Gly Gln Lys
                      375
Arg Pro Leu Val Thr Pro Gln Ala Ala Pro Glu Pro Lys Arg Pro His
                  390
                                      395
Ile Ala Gln Val Pro Glu Pro Pro Pro Lys Val Ala Asn Pro Pro Leu
               405
                                   410
Thr Pro Ala Ser Asp Arg Lys Lys Thr Lys Glu Gln Ile Ala His Leu
                              425
Lys Ala Ser Phe Leu Gln Ser Gln Phe Pro Asp Asp Ala Glu Val Tyr
                          440
Arg Leu Ile Glu Val Thr Gly Leu Ala Arg Ser Glu Ile Lys Lys Trp
                      455
                                          460
Phe Ser Asp His Arg Tyr Arg Cys Gln Arg Gly Ile Val His Ile Thr
                   470
                                      475
Ser Glu Ser Leu Ala Lys Asp Gln Leu Ala Ile Ala Ala Ser Arg His
               485
                                  490
Gly Arg Thr Tyr His Ala Tyr Pro Asp Phe Ala Pro Gln Lys Phe Lys
           500
                              505
Glu Lys Thr Gln Gly Gln Val Lys Ile Leu Glu Asp Ser Phe Leu Lys
                          520
Ser Ser Phe Pro Thr Gln Ala Glu Leu Asp Arg Leu Arg Val Glu Thr
                      535
Lys Leu Ser Arg Arg Glu Ile Asp Ser Trp Phe Ser Glu Arg Arg Lys
                  550
                                      555
Leu Arg Asp Ser Met Glu Gln Ala Val Leu Asp Ser Met Gly Ser Gly
              565
                                  570
Gln Lys Arg Pro Arg Cys Gly Lys Pro Pro Met Val Leu Cys Leu Asp
          580
                              585
Ser Asn Ser Ser Pro Val Pro Ser
```

<210> 53 <211> 163 <212> PRT

<213> Homo Sapiens

<400> 53

595

Arg Lys Ser Trp Glu His Lys Glu Glu Ile Ser Glu Ala Glu Pro Gly
1 5 10 15
6[17] Gly Ser Leu Gly Asp Gly Arg Pro Pro Glu Glu Ser Ala His Glu
20 25 30
Met Met Glu Glu Glu Glu Glu Ile Pro Lys Pro Lys Ser Val Val Ala
35 40 40
Pro Pro Gly Ala Pro Lys Lys Glu His Val Asn His Val Ala Gly Lys
50 50 5 60
Ser Thr Ile Gly Gly Gln Ile Met Tyr Leu Thr Gly Met Val Asp Lys
6Arg Thr Leu Glu Lys Tyr Glu Arg Glu Ala Lys Glu Lys Asn Arg Glu

85 90 Thr Trp Tyr Leu Ser Trp Ala Leu Asp Thr Asn Gln Glu Glu Arg Asp 105 Lys Gly Lys Thr Val Glu Val Gly Arg Ala Tyr Phe Glu Thr Glu Lys 120 Lys His Phe Thr Ile Leu Asp Met Asn Pro Arg Thr Leu Ser Ser Lys 135 140 Pro Lys Ala Gln Asn Leu Lys Leu Lys Val Pro Asn Ser Lys Val Arg 150 155 Arg Cys Phe <210> 54 <211> 155 <212> PRT <213> Homo Sapiens <400> 54 Glu Arg Trp Pro Glu Glu Gly Thr Ala Asp Leu Ala Gln Ser Gly Leu 1 5 10 Glu Gly Gly Thr Thr Arg Ala Ser Val Ser Trp Cys Cys Leu Glu Gly 25 Ser Trp Leu Leu Ser Gly Tyr Leu Thr Phe Leu Lys Thr Cys Ser His 40 Thr Ala Ser Leu Ala Val Ser Ser Ser Ser Cys Arg Ile Arg His Glu 55 Leu Val Pro Asn Ser Ala Arg Gly Lys His Tyr Ser Gln Arg Trp Ala 70 75 Gln Glu Asp Leu Leu Glu Glu Gln Lys Asp Gly Ala Arg Ala Ala Ala 90 Val Ala Asp Lys Lys Gly Leu Met Gly Pro Leu Thr Glu Leu Asp 100 105 Thr Lys Asp Val Asp Ala Leu Leu Lys Lys Ser Glu Ala Gln His Glu 115 120 Gln Pro Glu Asp Gly Cys Pro Phe Gly Ala Leu Thr Gln Arg Leu Leu 135 Gln Ala Leu Val Glu Glu Asn Ile Ile Phe Ser 145 150 <210> 55 <211> 112 <212> PRT <213> Homo Sapiens <400> 55 Ser Glu Arg Ala Leu Ala Pro Arg Thr Tyr Arg Met Glu Thr Ala Arg 10 Ser Ala Pro Tyr Met Arg Ser Met Met Gln Ser Leu Ser Gln Asn Pro 20 25 Asp Leu Ala Ala Gln Met Met Leu Asn Ser Pro Leu Phe Thr Ala Asn 40 Pro Gln Leu Gln Glu Gln Met Arg Pro Gln Leu Pro Ala Phe Leu Gln

Gln Met Gln Asn Pro Asp Thr Leu Ser Ala Met Ser Asn Pro Arg Ala

55

Met Gln Ala Leu Met Gln Ile Gln Gln Gly Leu Gln Thr Leu Ala Thr 85 90 95 Glu Ala Pro Gly Leu Ile Pro Ser Phe Thr Pro Gly Val Gly Val Gly 100 105 110

<210> 56 <211> 151

<212> PRT <213> Homo Sapiens

<400> 56

Lys Phe Gly Met Pro Ile Asp Cys Gly Leu Pro Pro His Ile Asp Phe 10 Gly Asp Cys Thr Lys Leu Lys Asp Asp Gln Gly Tyr Phe Glu Gln Glu 25 Asp Asp Met Met Glu Val Pro Tyr Val Thr Pro His Pro Pro Tyr His 40 Leu Gly Ala Val Ala Lys Thr Trp Glu Asn Thr Lys Glu Ser Pro Ala 55 Thr His Ser Ser Asn Phe Leu Tyr Gly Thr Met Val Ser Tyr Thr Cys 70 75 Asn Pro Gly Tyr Glu Leu Leu Gly Asn Pro Val Leu Ile Cys Gln Glu 85 90 Asp Gly Thr Trp Asn Gly Ser Ala Pro Ser Cys Ile Ser Ile Glu Cys 105 Asp Leu Pro Thr Ala Pro Glu Asn Gly Phe Leu Arg Phe Thr Glu Thr 120 Ser Met Gly Ser Ala Val Gln Tyr Ser Cys Lys Pro Gly His Ile Leu 135 140

<210> 57 <211> 220 <212> PRT <213> Homo Sapiens

Ala Gly Ser Asp Leu Arg Leu

<400> 57 Ala Ala Phe Val Ser Glu Val Thr Ser Phe Pro Val Val Gln Leu His 10 Met Asn Arg Thr Ala Met Arg Ala Ser Gln Lys Asp Phe Glu Asn Ser Ile Asn Gln Val Lys Leu Lys Lys Asp Pro Gly Asn Glu Val Lys 40 Leu Lys Leu Tyr Ala Leu Tyr Lys Gln Ala Thr Glu Gly Pro Cys Asn Met Pro Lys Pro Gly Val Phe Asp Leu Ile Asn Lys Ala Lys Trp Asp 70 75 Ala Trp Asn Ala Leu Gly Ser Leu Pro Lys Glu Ala Ala Arg Gln Asn 85 90 Tyr Val Asp Leu Val Ser Ser Leu Ser Pro Ser Leu Glu Ser Ser Ser 105 Gln Val Glu Pro Gly Thr Asp Arg Lys Ser Thr Gly Phe Glu Thr Leu 120 Val Val Thr Ser Glu Asp Gly Ile Thr Lys Ile Met Phe Asn Arg Pro

135 140 Lys Lys Lys Asn Ala Ile Asn Thr Glu Met Tyr His Glu Ile Met Arg 150 155 Ala Leu Lys Ala Ala Ser Lys Asp Asp Ser Ile Ile Thr Val Leu Thr 170 Gly Asn Gly Asp Tyr Tyr Ser Ser Gly Asn Asp Leu Thr Asn Phe Thr 180 185 Asp Ile Pro Pro Gly Gly Val Glu Lys Ala Lys Asn Asn Ala Val Leu 200 Leu Lys Gly Ile Cys Gly Leu Phe Tyr Arg Ile Ser 210 215 <210> 58 <211> 101 <212> PRT <213> Homo Sapiens <400> 58 Trp Pro Asp Leu Val His Thr Trp Ser Ser Glu Glu Ala Met Gly Ser 1 -5 10 Cys Cys Ser Cys Pro Asp Lys Asp Thr Val Pro Asp Asn His Arg Asn Lys Phe Lys Val Ile Asn Val Asp Asp Asp Gly Asn Glu Leu Gly Ser 35 40 Gly Ile Met Glu Leu Thr Asp Thr Glu Leu Ile Leu Tyr Thr Arg Lys 55 Arg Asp Ser Val Lys Trp His Tyr Leu Cys Leu Arg Arg Tyr Gly Tyr 70 75 Asp Ser Asn Leu Phe Ser Phe Glu Ser Gly Pro Arg Cys Gln Thr Gly 90 Thr Arg Asn Leu Cys 100 <210> 59 <211> 43 <212> PRT <213> Homo Sapiens <400> 59 Ala His Gly Pro Gly Val Glu Pro Thr Ser Arg His Gln Lys Asn Asn 10 Leu Ser Ser Ser His Thr Val Arg Leu Glu Thr Arg Glv Gln Thr Glu Asn Gln Glu Cys Leu Leu Cys Pro His Glu Glu 35 40 <210> 60 <211> 210 <212> PRT <213> Homo Sapiens

<400> 60 Leu Asn Gln Trp Thr Tyr Gln Ala Met Val His Glu Leu Leu Gly Ile 10 Asn Asn Asn Arg Ile Asp Leu Ser Arg Val Pro Gly Ile Ser Lys Asp

20 25 Leu Arg Glu Val Val Leu Ser Ala Glu Asn Asp Glu Phe Tyr Ala Asn 40 Asn Met Tyr Leu Asn Phe Ala Glu Ile Gly Ser Asn Ile Lys Asn Leu Met Glu Asp Phe Gln Lys Lys Pro Lys Glu Gln Gln Lys Leu Glu 70 75 Ser Ile Ala Asp Met Lys Ala Phe Val Glu Asn Tyr Pro Gln Phe Lys 90 Lys Met Ser Gly Thr Val Ser Lys His Val Thr Val Val Gly Glu Leu 100 105 Ser Arg Leu Val Ser Glu Arg Asn Leu Leu Glu Val Ser Glu Val Glu 120 Gln Glu Leu Ala Cys Gln Asn Asp His Ser Ser Ala Leu Gln Asn Ile 135 Lys Arg Leu Leu Gln Asn Pro Lys Val Thr Glu Phe Asp Ala Ala Arg 150 155 Leu Val Met Leu Tyr Ala Leu His Tyr Glu Arg His Ser Ser Asn Ser 165 170 Leu Pro Gly Leu Met Met Leu Arg Asn Lys Gly Val Ser Glu Lys Tyr 180 185 Arg Lys Leu Val Ser Ala Val Val Glu Tyr Gly Gly Lys Thr Ser Gln 200 Arq Lys 210 <210> 61 <211> 40 <212> PRT <213> Homo Sapiens <400> 61 Thr Pro Gly Pro Gly Ala Gly Phe Tyr Ala Cys Pro Ala Arg Pro Leu 10 Val Ser Gly Ile Tyr Ser Phe Arg Trp Val Arg Gly Leu Ala Asp Gln Glu Arg Asn Trp Gly Leu Ser Gln 35 <210> 62 <211> 238 <212> PRT <213> Homo Sapiens <400> 62 His Glu Ala Arg Leu Lys Arg Ala Ser Ala Pro Thr Phe Asp Asn Asp 5 10 Tyr Ser Leu Ser Glu Leu Leu Ser Gln Leu Asp Ser Gly Val Ser Gln 25 Ala Val Glu Gly Pro Glu Glu Leu Ser Arg Ser Ser Ser Glu Ser Lys 40 Leu Pro Ser Ser Gly Ser Gly Lys Arg Leu Ser Gly Val Ser Ser Val 60 Asp Ser Ala Phe Ser Ser Arg Gly Ser Leu Ser Leu Ser Phe Glu Arg 70

Glu Pro Ser Thr Ser Asp Leu Gly Thr Thr Asp Val Gln Lys Lys Lys 90 Leu Val Asp Ala Ile Val Ser Gly Asp Thr Ser Lys Leu Met Lys Ile 105 Leu Gln Pro Gln Asp Val Asp Leu Ala Leu Asp Ser Gly Ala Ser Leu 120 Leu His Leu Ala Val Glu Ala Gly Gln Glu Glu Cys Ala Lys Trp Leu 135 140 Leu Leu Asn Asn Ala Asn Pro Asn Leu Ser Asn Arg Arg Gly Ser Thr 150 155 Pro Leu His Met Ala Val Glu Arg Arg Val Arg Gly Val Val Glu Leu 165 170 Leu Leu Ala Arg Ile Ser Val Asn Ala Lys Asp Glu Asp Gln Trp Thr 185 Ala Leu His Phe Ala Asn Gly Gly Val His Thr Ala Ala Val Gly Glu 200 Arg Leu Gly Gln Thr Lys Val Asp Phe Glu Gly Arg Thr Pro Met Gln 215 Val Gly Leu Pro Thr Thr Gly Lys Asn Ile Leu Arg Ile Leu 230 <210> 63 <211> 146 <212> PRT <213> Homo Sapiens <400> 63 Arg Leu Gly Ala Ala Met Met Glu Gly Leu Asp Asp Gly Pro Asp Phe 5 10 Leu Ser Glu Glu Asp Arg Gly Leu Lys Ala Ile Asn Val Asp Leu Gln Ser Asp Ala Ala Leu Gln Val Asp Ile Ser Asp Ala Leu Ser Glu Arg 40 Asp Lys Val Lys Phe Thr Val His Thr Lys Ile Pro Pro Ala Pro Pro 55 Arg Pro Asp Phe Asp Ala Ser Arg Glu Lys Leu Gln Lys Leu Gly Glu 70 75 Gly Glu Gly Ser Met Thr Lys Glu Glu Phe Thr Lys Met Lys Gln Glu 85 90 Leu Glu Ala Glu Tyr Leu Ala Ile Phe Lys Lys Thr Val Ala Met His 105 Glu Val Phe Leu Cys Arg Val Ala Ala His Pro Ile Leu Arg Arg Asp 120 Leu Asn Phe His Val Phe Leu Glu Tyr Asn Gln Asp Leu Ser Val Arg 135

Gly Lys 145

> <210> 64 <211> 63 <212> PRT

<213> Homo Sapiens

<400> 64

Glu Arg Gly His Ser Ile Lys Asp Phe Val Ser Phe Ala Arg His Phe

1				5					10					15		
Ser	Pro	Asn	Pro	Arg	Ile	Val	Ser	Val	Asn	Ala	Ser	Tyr	Ser	Len	Ser	
			20	3				25				-1-	30		DCI	
3	a	0			G13	G13				_	_					
ASII	GIU		ser	Leu	GIU	GIN		Tyr	Thr	Leu	Lys		Ser	Pne	Ile	
		35					40					45				
Ala	Ser	Asn	Thr	Tyr	His	Asn	Gln	Leu	Tyr	Lys	Glu	Gly	Phe	Leu		
	50					55					60					
	< 2	210>	65													
		211>														
				PRT												
	< 2	213>	Homo Sapiens													
	<4	100>	65													
Glu	Ala	Pro	Asp	Ser	Ala	Glu	Gly	Thr	Thr	Leu	Thr	Val	Leu	Pro	Glu	
1			-	5			-		10					15		
Glv	Glu	GIII	T.=11		T-011	Circ	3707	cor	Glu	Cor	Dan	C1	T 011		7	
	O L u	014	20	LIO	шеи	Cys	var		GIU	ser	ASII	GIY		GIU	Leu	
_	_							25					30			
Pro	Pro		Ala	Ala	Ser	Asp	Glu	Pro	Leu	Gln	Glu	Pro	Leu	Glu	Ala	
		35					40					45				
Asp	Arg	Thr	Ser	Glu	Glu	Leu	Thr	Glu	Ala	Lys	Thr	Pro	Thr	Ser	Ser	
	50					55					60					
Pro	Glu	Lvs	Pro	Gln	Glu	Leu	Val	Thr	Ala	Glu	Val	Δla	Δla	Pro	Sar	
65		-1-			70					75	•	7124	712.0		80	
	C		~~-	77-			0	D	~1							
TIII	ser	Ser	Ser		Inr	ser	ser	Pro	Glu	GIY	Pro	ser	Pro		Arg	
				85					90					95		
Pro	Pro	Arg		Arg	Thr	Ser	Ala	Asp	Val	Glu	Ile	Arg	Gly	Gln	Gly	
			100					105					110			
Thr	Gly	Arg	Pro	Gly	Gln	Pro	Pro	Gly	Pro	Lys	Val	Leu	Arg	Lys	Leu	
		115					120					125				
Pro	Glv	Ara	Leu	Val	Thr	Val	Val	Glu	Glu	Tava	Glu	Len	Val	Ara	Ara	
	130	_				135				2-	140				9	
Ara		Gln	Gl n	7) ra	0111		71-	C 0 m	Thr	T		70	01. -	77-7	a	
145	nr 9	GIII	GIII	ьц		ALA	Ата	ser	TILL		val	PIO	GIA	vai		
		_		_	150		_			155					160	
GIU	Thr	Ser	Ala		Pro	GIA	Ser	Pro	Ser	Val	Arg	Ser	Met	Ser	Gly	
				165					170					175		
Pro	Glu	Ser	Ser	Pro	Pro	Ile	Gly	Gly	Pro	Cys	Glu	Ala	Ala	Pro	Ser	
			180					185					190			
Ser	Ser	Leu	Pro	Thr	Pro	Pro										
		195														
		210.														
		210>														
			159													
	< 2	212>	DNA													
	<2	213>	Home	o Saj	pien	s										
		400-														

<400> 66 ttctttgaaa cattattatt cagaacgaag gagaatgata cagatacact ggctgaggtg 60 ttttgaggtg cattgaaatg ttccatgctg ttacttaggt taacatgttc ttgaggtacc 120 atgccatgga ttaaaaggaa atttggtaag tggcttccac ctaaacgact tactagggaa 180 gctatgcgaa attatttaaa agggtaaggg gatcaaatag tacttatcct tcatgcaaaa 240 gttgtacaga agtcatatgg caatcaaaaa atttttttt gccctccccc ttgtgtatat 300 cttatgggca gtggatggaa gaaaaaaaa gaacaaatga aatgcgatgg ttgttctgaa 360 cacagetete atecatgtge atttattggg ataggaaata gtgaccaaga aatgcagcag 420 ctaaacttgg aaggaaagaa ctattgcaca gccaaaacat tgtacatatc tgattcagac 480

```
aagcaaaagc acttcatttt ttctgtaaag gtgttctatg gcaacggtga tgacattqqt
gtgttcctca gcaagtagat aaaagtcatc tccaaacctt ccaaaaagaa gcagtcattg
                                                                      600
aaaaatgctg acttatgcat tgtctcagga acaaaggtgg ctctgtttaa tcgactacga
                                                                      660
tcccagacag ttagtaccag atacttgcat gtagaaggag gtaattttca tgccagttca
                                                                      720
cagcagtggg gagcatttta cattcaattc ttggatgatg atggatcaga aggagaagaa
                                                                      780
ttcacagtct gagatgccta cattcattat ggacaaacat gcaaacttqt qtqctcaqtt
                                                                      840
actggcatgg cactcccaag attgataatt atgaaagttg ataagcatac cgcattattg
gatgcagatg atcctgtgtc acaactccat aaatgtgcat tttaccttaa ggatacagaa
                                                                      960
agaatgtatt tgtgcctttc tcaagaaaga ataattcaat ttcaggccac tccatgtcca
                                                                     1020
agagaaccaa ataaagagat gataaatgat ggcgcttcct ggacaatcat tagcacagat
                                                                     1080
aaggcagggt atacatttta tgagggaatg ggccctqtcc ttqccccaqt cactcctqtq
                                                                     1140
cctgtggtag agagccttca gttgaatggc ggtggggacg tagcaatgct tgaacttaca
                                                                     1200
ggacagaatt tcactccaaa tttacgagtg tggtttgggg gggtagaagc tgaaactatg
                                                                     1260
tacaggtgtg gagagagtat gctctgtgtc gtcccagaca tttctgcatt ccgagaaggt
                                                                     1320
tggagatggg tccggcaacc agtccaggtt ccagtaactt tggtccgaaa tgatggaatc
                                                                     1380
atttattcca ccagccttac ctttacctac acaccagaac cagggccgcg gccacattgc
                                                                     1440
agtgcagcag gagcaatcct totagccaat toaagccagg tgccccctaa cgaatcaaac
                                                                     1500
acaaacagcg agggaagtta cacaaacgcc agcacaaatt caaccagtgt cacatcatct
                                                                     1560
acagecacag tggtatecta actacegtet ttttgetag
                                                                     1599
```

<210> 67 <211> 729

<212> PRT

<213> Homo Sapiens

<400> 67

Met Gly Lys Lys Tyr Lys Asn Ile Val Leu Leu Lys Gly Leu Glu Val 10 Ile Asn Asp Tyr His Phe Arg Met Val Lys Ser Leu Leu Ser Asn Asp 20 25 Leu Lys Leu Asn Leu Lys Met Arg Glu Glu Tyr Asp Lys Ile Gln Ile Ala Asp Leu Met Glu Glu Lys Phe Arg Gly Asp Ala Gly Leu Gly Lys 55 Leu Ile Lys Ile Phe Glu Asp Ile Pro Thr Leu Glu Asp Leu Ala Glu 70 75 Thr Leu Lys Lys Glu Lys Leu Lys Val Lys Gly Pro Ala Leu Ser Arg 90 Lys Arg Lys Lys Glu Val His Ala Thr Ser Pro Ala Pro Ser Thr Ser 105 Ser Thr Val Lys Thr Glu Gly Ala Glu Ala Thr Pro Gly Ala Gln Lys 120 Arg Lys Lys Ser Thr Lys Glu Lys Ala Gly Pro Lys Gly Ser Lys Val 135 Ser Glu Glu Gln Thr Gln Pro Pro Ser Pro Ala Gly Ala Gly Met Ser 150 155 Thr Ala Met Gly Arg Ser Pro Ser Pro Lys Thr Ser Leu Ser Ala Pro 165 170 Pro Asn Ser Ser Ser Thr Glu Asn Pro Lys Thr Val Ala Lys Cys Gln 185 Val Thr Pro Arg Arg Asn Val Leu Gln Lys Arg Pro Val Ile Val Lys 200 205 Val Leu Ser Thr Thr Lys Pro Phe Glu Tyr Glu Thr Pro Glu Met Glu 215 220 Lys Lys Ile Met Phe His Ala Thr Val Ala Thr Gln Thr Gln Phe Phe

225 230 235 His Val Lys Val Leu Asn Thr Ser Leu Lys Glu Lys Phe Asn Gly Lys 250 Lys Ile Ile Ile Ser Asp Tyr Leu Glu Tyr Asp Ser Leu Leu Glu Val Asn Glu Glu Ser Thr Val Ser Glu Ala Gly Pro Asn Gln Thr Phe 275 280 Glu Val Pro Asn Lys Ile Ile Asn Arg Ala Lys Glu Thr Leu Lys Ile 295 300 Asp Ile Leu His Lys Gln Ala Ser Gly Asn Ile Val Tyr Gly Val Phe 310 315 Met Leu His Lys Lys Thr Val Asn Gln Lys Thr Thr Ile Tyr Glu Ile 325 330 Gln Asp Asp Arg Gly Lys Met Asp Val Val Gly Thr Gly Gln Cys His 345 Asn Ile Pro Cys Glu Glu Gly Asp Lys Leu Gln Leu Phe Cys Phe Arg 360 Leu Arg Lys Lys Asn Gln Met Ser Lys Leu Ile Ser Glu Met His Ser 375 380 Phe Ile Gln Ile Lys Lys Lys Thr Asn Pro Arg Asn Asn Asp Pro Lys 390 395 Ser Met Lys Leu Pro Gln Glu Gln Arg Gln Leu Pro Tyr Pro Ser Glu 405 410 Ala Ser Thr Thr Phe Pro Glu Ser His Leu Arg Thr Pro Gln Met Pro 425 Pro Thr Thr Pro Ser Ser Ser Phe Phe Thr Lys Lys Ser Glu Asp Thr 440 Ile Ser Lys Met Asn Asp Phe Met Arg Met Gln Ile Leu Lys Glu Gly 455 460 Ser His Phe Pro Gly Pro Phe Met Thr Ser Ile Gly Pro Ala Glu Ser 470 475 His Pro His Thr Pro Gln Met Pro Pro Ser Thr Pro Ser Ser Ser Phe 485 490 Leu Thr Thr Leu Lys Pro Arg Leu Lys Thr Glu Pro Glu Glu Val Ser 500 505 Ile Glu Asp Ser Ala Gln Ser Asp Leu Lys Glu Val Met Val Leu Asn 520 Ala Thr Glu Ser Phe Val Tyr Glu Pro Lys Glu Gln Lys Lys Met Phe 535 His Ala Thr Val Ala Thr Glu Asn Glu Val Phe Arg Val Lys Val Phe 550 555 Asn Ile Asp Leu Lys Glu Lys Phe Thr Pro Lys Lys Ile Ile Ala Ile 570 Ala Asn Tyr Val Cys Arg Asn Gly Phe Leu Glu Val Tyr Pro Phe Thr 585 Leu Val Ala Asp Val Asn Ala Asp Ala Asn Met Glu Ile Pro Lys Gly 600 Leu Ile Arg Ser Ala Ser Val Thr Pro Lys Ile Asn Gln Leu Cys Ser 615 Gln Thr Lys Gly Ser Phe Val Asn Gly Val Phe Glu Val His Lys Lys 630 635 Asn Val Arg Gly Glu Phe Thr Tyr Tyr Glu Ile Gln Asp Asn Thr Gly 650 Lys Met Glu Val Val Val His Gly Arg Leu Asn Thr Ile Asn Cys Glu 665

Glu Gly Asp Lys Leu Lys Leu Thr Ser Phe Glu Leu Ala Pro Lys Ser 680 Gly Asn Thr Gly Glu Leu Arg Ser Val Ile His Ser His Ile Lys Val 695 700 Ile Lys Thr Lys Lys Asn Lys Lys Asp Ile Leu Asn Pro Asp Ser Ser 710 715 Met Glu Thr Ser Pro Asp Phe Phe Phe 725 <210> 68 <211> 754 <212> PRT <213> Homo Sapiens <400> 68 Met Ala Ser Val Pro Ala Leu Gln Leu Thr Pro Ala Asn Pro Pro Pro 10 Pro Glu Val Ser Asn Pro Lys Lys Pro Gly Arg Val Thr Asn Gln Leu 25 Gln Tyr Leu His Lys Val Val Met Lys Ala Leu Trp Lys His Gln Phe 40 Ala Trp Pro Phe Arg Gln Pro Val Asp Ala Val Lys Leu Gly Leu Pro 55 Asp Tyr His Lys Ile Ile Lys Gln Pro Met Asp Met Gly Thr Ile Lys

75 Arg Arg Leu Glu Asn Asn Tyr Tyr Trp Ala Ala Ser Glu Cys Met Gln 8.5 90 Asp Phe Asn Thr Met Phe Thr Asn Cys Tyr Ile Tyr Asn Lys Pro Thr 100 105 Asp Asp Ile Val Leu Met Ala Gln Thr Leu Glu Lys Ile Phe Leu Gln 120 Lys Val Ala Ser Met Pro Gln Glu Glu Gln Glu Leu Val Val Thr Ile 135 140 Pro Lys Asn Ser His Lys Lys Gly Ala Lys Leu Ala Ala Leu Gln Gly 150 155 Ser Val Thr Ser Ala His Gln Val Pro Ala Val Ser Ser Val Ser His 165 170 175 Thr Ala Leu Tyr Thr Pro Pro Pro Glu Ile Pro Thr Thr Val Leu Asn 185 190 Ile Pro His Pro Ser Val Ile Ser Ser Pro Leu Leu Lys Ser Leu His 200 205 Ser Ala Gly Pro Pro Leu Leu Ala Val Thr Ala Ala Pro Pro Ala Gln 215 220 Pro Leu Ala Lys Lys Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr 230 235 Pro Thr Pro Thr Ala Ile Leu Ala Pro Gly Ser Pro Ala Ser Pro Pro 245 250 Gly Ser Leu Glu Pro Lys Ala Ala Arg Leu Pro Pro Met Arg Arg Glu 265 Ser Gly Arg Pro Ile Lys Pro Pro Arg Lys Asp Leu Pro Asp Ser Gln 275 280 Gln Gln His Gln Ser Ser Lys Lys Gly Lys Leu Ser Glu Gln Leu Lys 295 300 His Cys Asn Gly Ile Leu Lys Glu Leu Leu Ser Lys Lys His Ala Ala

Tyr Ala Trp Pro Phe Tyr Lys Pro Val Asp Ala Ser Ala Leu Gly Leu 325 330 His Asp Tyr His Asp Ile Ile Lys His Pro Met Asp Leu Ser Thr Val 345 Lys Arg Lys Met Glu Asn Arg Asp Tyr Arg Asp Ala Gln Glu Phe Ala 360 Ala Asp Val Arg Leu Met Phe Ser Asn Cys Tyr Lys Tyr Asn Pro Pro 375 380 Asp His Asp Val Val Ala Met Ala Arg Lys Leu Gln Asp Val Phe Glu 390 395 Phe Arg Tyr Ala Lys Met Pro Asp Glu Pro Leu Glu Pro Gly Pro Leu 405 410 Pro Val Ser Thr Ala Met Pro Pro Gly Leu Ala Lys Ser Ser Ser Glu 420 425 Ser Ser Ser Glu Glu Ser Ser Glu Ser Ser Glu Glu Glu Glu 440 Glu Glu Asp Glu Glu Glu Glu Glu Glu Ser Glu Ser Ser Asp 455 Ser Glu Glu Glu Arg Ala His Arg Leu Ala Glu Leu Gln Glu Gln Leu 470 475 Arg Ala Val His Glu Gln Leu Ala Ala Leu Ser Gln Gly Pro Ile Ser 490 485 Lys Pro Lys Arg Lys Arg Glu Lys Lys Glu Lys Lys Lys Arg Lys 500 505 Ala Glu Lys His Arg Gly Arg Ala Gly Ala Asp Glu Asp Asp Lys Gly 520 Pro Arg Ala Pro Arg Pro Pro Gln Pro Lys Lys Ser Lys Lys Ala Ser 535 540 Gly Ser Gly Gly Ser Ala Ala Leu Gly Pro Ser Gly Phe Gly Pro 550 555 Ser Gly Gly Ser Gly Thr Lys Leu Pro Lys Lys Ala Thr Lys Thr Ala 565 570 Pro Pro Ala Leu Pro Thr Gly Tyr Asp Ser Glu Glu Glu Glu Ser 585 Arg Pro Met Ser Tyr Asp Glu Lys Arg Gln Leu Ser Leu Asp Ile Asn 600 Lys Leu Pro Gly Glu Lys Leu Gly Arq Val Val His Ile Ile Gln Ala 615 Arg Glu Pro Ser Leu Arg Asp Ser Asn Pro Glu Glu Ile Glu Ile Asp 630 Phe Glu Thr Leu Lys Pro Ser Thr Leu Arg Glu Leu Glu Arg Tyr Val 645 650 Leu Ser Cys Leu Arg Lys Lys Pro Arg Lys Pro Tyr Thr Ile Lys Lys 665 Pro Val Gly Lys Thr Lys Glu Glu Leu Ala Leu Glu Lys Lys Arg Glu 680 Leu Glu Lys Arg Leu Gln Asp Val Ser Gly Gln Leu Asn Ser Thr Lys 695 700 Lys Pro Pro Lys Lys Ala Asn Glu Lys Thr Glu Ser Ser Ser Ala Gln 710 715 Gln Val Ala Val Ser Arg Leu Ser Ala Ser Ser Ser Ser Ser Asp Ser 725 730 Ser Ser Ser Ser Ser Ser Ser Ser Ser Asp Thr Ser Asp Ser Asp 745 Ser Gly

<210> 69 <211> 210 <212> PRT <213> Homo Sapiens

<400> 69

Met Asp Asp Glu Glu Glu Thr Tyr Arg Leu Trp Lys Ile Arg Lys Thr 1.0 Ile Met Gln Leu Cys His Asp Arg Gly Tyr Leu Val Thr Gln Asp Glu Leu Asp Gln Thr Leu Glu Glu Phe Lys Ala Gln Phe Gly Asp Lys Pro 40 Ser Glu Gly Arg Pro Arg Arg Thr Asp Leu Thr Val Leu Val Ala His Asn Asp Asp Pro Thr Asp Gln Met Phe Val Phe Phe Pro Glu Glu Pro Lys Val Gly Ile Lys Thr Ile Lys Val Tyr Cys Gln Arg Met Gln Glu 90 Glu Asn Ile Thr Arg Ala Leu Ile Val Val Gln Gln Gly Met Thr Pro 105 Ser Ala Lys Gln Ser Leu Val Asp Met Ala Pro Lys Tyr Ile Leu Glu 120 125 Gln Phe Leu Gln Glu Glu Leu Leu Ile Asn Ile Thr Glu His Glu Leu 135 140 Val Pro Glu His Val Val Met Thr Lys Glu Glu Val Thr Glu Leu Leu 150 155 Ala Arg Tyr Lys Leu Arg Glu Asn Gln Leu Pro Arg Ile Gln Ala Gly 170 Asp Pro Val Ala Arg Tyr Phe Gly Ile Lys Arg Gly Gln Val Val Lys 180 185 Ile Ile Arg Pro Ser Glu Thr Ala Gly Arg Tyr Ile Thr Tyr Arg Leu 200

Val Gln 210

> <210> 70 <211> 621 <212> PRT <213> Homo Sapiens

<400> 70

Met Leu Leu Pro Ser Ala Ala Glu Gly Gln Gly Thr Ala Ile Thr 10 His Ala Leu Thr Ser Ala Ser Ser Val Cys Gln Val Glu Pro Val Gly 25 Arg Trp Phe Glu Ala Phe Val Lys Arg Arg Asn Arg Asn Ala Ser Thr 40 Ser Phe Gln Glu Leu Glu Asp Lys Lys Glu Leu Ser Glu Glu Ser Glu 55 Asp Glu Glu Leu Gln Leu Glu Glu Phe Pro Met Leu Lys Thr Leu Asp 70 Pro Lys Asp Trp Lys Asn Gln Asp His Tyr Ala Val Leu Gly Leu Gly

His Val Arg Tyr Thr Ala Thr Gln Arg Gln Ile Lys Ala Ala His Lys 105 Ala Met Val Leu Lys His His Pro Asp Lys Arg Lys Ala Ala Gly Glu 120 Pro Ile Lys Glu Gly Asp Asn Asp Tyr Phe Thr Cys Ile Thr Lys Ala 135 Tyr Glu Met Leu Ser Asp Pro Val Lys Arg Arg Ala Phe Asn Ser Val 150 155 Asp Pro Thr Phe Asp Asn Ser Val Pro Ser Lys Ser Glu Ala Lys Asp 165 170 Asn Phe Phe Gln Val Phe Ser Pro Val Phe Glu Arg Asn Ser Arg Trp 180 185 Ser Asn Lys Lys Asn Val Pro Lys Leu Gly Asp Met Asn Ser Ser Phe 200 205 Glu Asp Val Asp Ala Phe Tyr Ser Phe Trp Tyr Asn Phe Asp Ser Trp 215 Arg Glu Phe Ser Tyr Leu Asp Glu Glu Glu Lys Glu Lys Ala Glu Cys 230 235 Arg Asp Glu Arg Lys Trp Ile Glu Lys Gln Asn Arg Ala Thr Arg Ala 250 Gln Arg Lys Lys Glu Glu Met Asn Arg Ile Arg Thr Leu Val Asp Asn 260 265 Ala Tyr Ser Cys Asp Pro Arg Ile Lys Lys Phe Lys Glu Glu Glu Lys 280 Ala Lys Lys Glu Ala Glu Lys Lys Ala Lys Ala Glu Ala Arg Arg Lys 295 300 Glu Gln Glu Ala Lys Glu Lys Gln Arg Gln Ala Glu Leu Glu Ala Val 310 315 Arg Leu Ala Lys Glu Lys Glu Glu Glu Glu Val Arg Gln Gln Ala Leu 325 330 Leu Ala Lys Lys Glu Lys Asp Ile Gln Lys Lys Ala Ile Lys Lys Glu 340 345 Arg Gln Lys Leu Arg Asn Ser Cys Lys Ser Trp Asn His Phe Ser Asp 360 365 Asn Glu Ala Asp Arg Val Lys Met Met Glu Glu Val Glu Lys Leu Cys 375 380 Asp Arg Leu Glu Leu Ala Ser Leu Gln Gly Leu Asn Glu Ile Leu Ala 390 395 Ser Ser Thr Arg Glu Val Gly Lys Ala Ala Leu Glu Lys Gln Ile Glu 410 Glu Val Asn Glu Gln Met Arg Arg Glu Lys Glu Glu Ala Asp Ala Arg 425 Met Arg Gln Ala Ser Lys Asn Ala Glu Lys Ser Thr Gly Gly Ser Gly 440 Ser Gly Ser Lys Asn Trp Ser Glu Asp Asp Leu Gln Leu Leu Ile Lys 455 460 Ala Val Asn Leu Phe Pro Ala Gly Thr Asn Ser Arg Trp Glu Val Ile 470 475 Ala Asn Tyr Met Asn Ile His Ser Ser Ser Gly Val Lys Arg Thr Ala 485 490 Lys Asp Val Ile Ser Lys Ala Lys Ser Leu Gln Lys Leu Asp Pro His 505 Gln Lys Asp Asp Ile Asn Lys Lys Ala Phe Asp Lys Phe Lys Lys Glu 520 His Gly Val Ala Ser Gln Ala Asp Ser Ala Ala Pro Ser Glu Arg Phe

530 535 540 Glu Gly Pro Cys Ile Asp Ser Thr Pro Trp Thr Thr Glu Glu Gln Lys 550 555 Leu Leu Glu Gln Ala Leu Lys Thr Tyr Pro Val Asn Thr Pro Glu Arg 565 570 Trp Glu Lys Ile Ala Glu Ala Val Pro Gly Arg Thr Lys Lys Asp Cys 585 580 Met Arg Arg Tyr Lys Glu Leu Val Glu Met Val Lys Ala Lys Lys Ala 595 600 Ala Gln Glu Gln Val Leu Asn Ala Ser Arg Ala Arg Lys 615 610 <210> 71 <211> 267 <212> PRT <213> Homo Sapiens <400> 71 Met Ala Ser Leu Leu Lys Val Asp Gln Glu Val Lys Leu Lys Val Asp 10 Ser Phe Arg Glu Arg Ile Thr Ser Lys Ala Glu Asp Leu Val Ala Asn 25 Phe Phe Pro Lys Lys Leu Leu Glu Leu Asp Ser Phe Leu Lys Glu Pro 40 Ile Leu Asn Ile His Asp Leu Thr Gln Ile His Ser Asp Met Asn Leu 55 Pro Val Pro Asp Pro Ile Leu Leu Thr Asn Ser His Asp Gly Leu Asp 70 75 Gly Pro Thr Tyr Lys Lys Arg Arg Leu Asp Glu Cys Glu Glu Ala Phe 90 85 Gln Gly Thr Lys Val Phe Val Met Pro Asn Gly Met Leu Lys Ser Asn 105 Gln Gln Leu Val Asp Ile Ile Glu Lys Val Lys Pro Glu Ile Arg Leu 115 120 125 Leu Ile Glu Lys Cys Asn Thr Pro Ser Gly Lys Gly Pro His Ile Cys 135 140 Phe Asp Leu Gln Val Lys Met Trp Val Gln Leu Leu Ile Pro Arg Ile 150 155 Glu Asp Gly Asn Asn Phe Gly Val Ser Ile Gln Glu Glu Thr Val Ala 170 Glu Leu Arg Thr Val Glu Ser Glu Ala Ala Ser Tyr Leu Asp Gln Ile 185 Ser Arg Tyr Tyr Ile Thr Arg Ala Lys Leu Val Ser Lys Ile Ala Lys 200 195 Tyr Pro His Val Glu Asp Tyr Arg Arg Thr Val Thr Glu Ile Asp Glu 215 220 Lys Glu Tyr Ile Ser Leu Arg Leu Ile Ile Ser Glu Leu Arg Asn Gln 230 235 Tyr Val Thr Leu His Asp Met Ile Leu Lys Asn Ile Glu Lys Ile Lys

> <210> 72 <211> 1752

260

245

Arg Pro Arg Ser Ser Asn Ala Glu Thr Leu Tyr

<212> PRT

<213> Homo Sapiens

<400> 72 Arg Glu Lys Arg Arg Arg Lys Ser Val Glu Asp Arg Phe Asp Gln Gln 10 Lys Asn Asp Tyr Asp Gln Leu Gln Lys Ala Arg Gln Cys Glu Lys Glu 20 25 Asn Leu Gly Trp Gln Lys Leu Glu Ser Glu Lys Ala Ile Lys Glu Lys 40 Glu Tyr Glu Ile Glu Arg Leu Arg Val Leu Leu Gln Glu Glu Gly Thr 55 Arg Lys Arg Glu Tyr Glu Asn Glu Leu Ala Lys Val Arg Asn His Tyr 70 Asn Glu Glu Met Ser Asn Leu Arg Asn Lys Tyr Glu Thr Glu Ile Asn 85 90 Ile Thr Lys Thr Thr Ile Lys Glu Ile Ser Met Gln Lys Glu Asp Asp 100 105 Ser Lys Asn Leu Arg Asn Gln Leu Asp Arg Leu Ser Arg Glu Asn Arg 120 Asp Leu Lys Asp Glu Ile Val Arg Leu Asn Asp Ser Ile Leu Gln Ala 135 140 Thr Glu Gln Arg Arg Ala Glu Glu Asn Ala Leu Gln Gln Lys Ala 150 155 Cys Gly Ser Glu Ile Met Gln Lys Lys Gln His Leu Glu Ile Glu Leu 170 165 Lys Gln Val Met Gln Gln Arg Ser Glu Asp Asn Ala Arg His Lys Gln 185 Ser Leu Glu Glu Ala Ala Lys Thr Ile Gln Asp Lys Asn Lys Glu Ile 200 Glu Arg Leu Lys Ala Glu Phe Gln Glu Glu Ala Lys Arg Arg Trp Glu 215 220 Tyr Glu Asn Glu Leu Ser Lys Val Arg Asn Asn Tyr Asp Glu Glu Ile 230 235 Ile Ser Leu Lys Asn Gln Phe Glu Thr Glu Ile Asn Ile Thr Lys Thr 245 250 Thr Ile His Gln Leu Thr Met Gln Lys Glu Glu Asp Thr Ser Gly Tyr 260 265 Arg Ala Gln Ile Asp Asn Leu Thr Arg Glu Asn Arg Ser Leu Ser Glu 280 Glu Ile Lys Arg Leu Lys Asn Thr Leu Thr Gln Thr Thr Glu Asn Leu 300 Arg Arg Val Glu Glu Asp Ile Gln Gln Gln Lys Ala Thr Gly Ser Glu 310 315 Val Ser Gln Arg Lys Gln Gln Leu Glu Val Glu Leu Arg Gln Val Thr 325 330 Gln Met Arg Thr Glu Glu Ser Val Arg Tyr Lys Gln Ser Leu Asp Asp 345 Ala Ala Lys Thr Ile Gln Asp Lys Asn Lys Glu Ile Glu Arg Leu Lys 360 Gln Leu Ile Asp Lys Glu Thr Asn Asp Arg Lys Cys Leu Glu Asp Glu 375 380 Asn Ala Arg Leu Gln Arg Val Gln Tyr Asp Leu Gln Lys Ala Asn Ser 390 395

Ser Ala Thr Glu Thr Ile Asn Lys Leu Lys Val Gln Glu Gln Glu Leu

WO 99/04265

405 410 Thr Arg Leu Arg Ile Asp Tyr Glu Arg Val Ser Gln Glu Arg Thr Val 425 Lys Asp Gln Asp Ile Thr Arg Phe Gln Asn Ser Leu Lys Glu Leu Gln 440 Leu Gln Lys Gln Lys Val Glu Glu Glu Leu Asn Arg Leu Lys Arg Thr 455 460 Ala Ser Glu Asp Ser Cys Lys Arg Lys Lys Leu Glu Glu Glu Leu Glu 470 475 Gly Met Arg Arg Ser Leu Lys Glu Gln Ala Ile Lys Ile Thr Asn Leu 485 490 Thr Gln Gln Leu Glu Gln Ala Ser Ile Val Lys Lys Arg Ser Glu Asp 505 Asp Leu Arg Gln Gln Arg Asp Val Leu Asp Gly His Leu Arg Glu Lys 520 Gln Arg Thr Gln Glu Glu Leu Arg Arg Leu Ser Ser Glu Val Glu Ala 535 540 Leu Arg Arg Gln Leu Leu Gln Glu Gln Glu Ser Val Lys Gln Ala His 550 555 Leu Arg Asn Glu His Phe Gln Lys Ala Ile Glu Asp Lys Ser Arg Ser 565 570 Leu Asn Glu Ser Lys Ile Glu Ile Glu Arg Leu Gln Ser Leu Thr Glu 585 Asn Leu Thr Lys Glu His Leu Met Leu Glu Glu Glu Leu Arg Asn Leu 600 Arg Leu Glu Tyr Asp Asp Leu Arg Arg Gly Arg Ser Glu Ala Asp Ser 615 Asp Lys Asn Ala Thr Ile Leu Glu Leu Arg Ser Gln Leu Gln Ile Ser 630 635 Asn Asn Arg Thr Leu Glu Leu Gln Gly Leu Ile Asn Asp Leu Gln Arg 645 650 Glu Arg Glu Asn Leu Arg Gln Glu Ile Glu Lys Phe Gln Lys Gln Ala 660 665 Leu Glu Ala Ser Asn Arg Ile Gln Glu Ser Lys Asn Gln Cys Thr Gln 680 Val Val Gln Glu Arg Glu Ser Leu Leu Val Lys Ile Lys Val Leu Glu 695 Gln Asp Lys Ala Arg Leu Gln Arg Leu Glu Asp Glu Leu Asn Arg Ala 710 715 Lys Ser Thr Leu Glu Ala Glu Thr Arg Val Lys Gln Arg Leu Glu Cys 730 Glu Lys Gln Gln Ile Gln Asn Asp Leu Asn Gln Trp Lys Thr Gln Tyr 745 Ser Arg Lys Glu Glu Ala Ile Arg Lys Ile Glu Ser Glu Arg Glu Lys 760 Ser Glu Arg Glu Lys Asn Ser Leu Arg Ser Glu Ile Glu Arg Leu Gln 775 Ala Glu Ile Lys Arg Ile Glu Glu Arg Cys Arg Arg Lys Leu Glu Asp 790 795 Ser Thr Arg Glu Thr Gln Ser Gln Leu Glu Thr Glu Arg Ser Arg Tyr 810 Gln Arg Glu Ile Asp Lys Leu Arg Gln Arg Pro Tyr Gly Ser His Arg 825 Glu Thr Gln Thr Glu Cys Glu Trp Thr Val Asp Thr Ser Lys Leu Val 840

Dha	7	a1	*		T	T	**- 1	m 1			~3	_	_		_
FIIE	Asp 850	GLY	Бец	AIG	ьуѕ	855	val	IIII	Ald	mec	860	Leu	Tyr	GIU	Cys
Gln	Leu	Ile	Asp	Lys	Thr		Leu	Asp	Lvs	Leu		Lvs	Glv	Lvs	Lvs
865					870					875					880
Ser	Val	Glu	Glu		Ala	Ser	Glu	Ile		${\tt Pro}$	Phe	Leu	Arg	Gly	Ala
	_			885			_		890					895	
Gly	Ser	Ile		Gly	Ala	Ser	Ala		Pro	Lys	Glu	Lys		Ser	Leu
Val	Glu	77-	900	7.20	7 110	T	T 011	905	C	D	a1	a	910	**- 1	
Val	GIU	915	шуъ	Arg	цуь	Lys	920	тте	ser	PIO	GIU	925	THE	vaı	Met
Leu	Leu		Ala	Gln	Ala	Ala		Glv	Glv	Ile	Ile		Pro	His	Ara
	930					935					940				
	Glu	Lys	Leu	Thr		Asp	Ser	Ala	Ile	Ala	Arg	Asp	Leu	Ile	Asp
945					950					955					960
Phe	Asp	Asp	Arg	965	Gln	Ile	Tyr	Ala		Glu	Lys	Ala	Ile		Gly
Phe	Asp	Aen	Dro		Ser	G1 v	Tara	Thr	970	602	17-1	Cor	<i>α</i> 1	975	~1 ~
	тр	пор	980				275	985	vai	001	vai	Ser	990	ALA	116
Lys	Lys	Asn	Leu	Ile	Asp	Arg	Glu	Thr	Gly	Met	Arg	Leu		Glu	Ala
		995					1000)				1005	5		
Gln	Ile		Ser	Gly				Asp	Pro	Val			Val	Phe	Leu
Dro	1010 Lys		Val	λla		1015		C1	T 011	T1.0	1020			·	m
102		мэр	vai	ALG	1030		Arg	GLY	пеп	1035		Arg	Asp	Leu	191 104
Arg	Ser	Leu	Asn	Asp			Asp	Ser	Gln			Phe	Val	Asp	
				1045	5				1050)				1055	5
Val	Thr	Lys			Val	Ser	Tyr			Leu	Lys	Glu			Arg
T1.0	Glu	Dro	1060		G1 **	T 011	T 0	1065			**- 7	~ 1	1070		
ire	Giu	1075		1111	GIY	Leu	1080		Leu	ser	vaı	108!		Arg	ser
Met	Ser			Gly	Ile	Arg			Val	Thr	Val			Leu	Val
	1090)				109	5				1100)			
	Ser	Gly	Ile	Leu			Ser	Thr	Val			Leu	Glu	Ser	
110	Ile	cor	There	7.00	1110		a1	a1	7	111!			D1		112
GIII	116	per	TYT	112!	5 5	vai	GIY	GIU	113		ьys	Asp	Pne	1135	
Gly	Ser	Ser	Cys			Gly	Ile	Tyr			Thr	Thr	Lys		
			1140)				1145	5				1150)	
Leu	Gly			Glu	Ala	Met			Gly	Leu	Val			Gly	Thr
71.0	T 011	115		T	a1	*1-	116			-	~1	1169			
MIA	Leu 117		rea	Leu	GIU	117		Ата	Ата	Thr	118		Ile	Val	qaA
															Glar
Pro	Val	Ser	Asn	Leu	Arq	Leu	Pro	Val	Glu	Glu	Ala	Tvr	Lvs	Ara	
118					119	0				119	5				120
118				Glu	1190 Phe	0				119	5				120
118 Leu	5 Val	Gly	Ile	Glu 120	1190 Phe 5) Lys	Glu	Lys	Leu 121	119 Leu 0	ser	Ala	Glu	Arg	120 Ala
118 Leu	5	Gly	Ile Tyr	Glu 120 Asn	1190 Phe 5) Lys	Glu	Lys Thr	Leu 1210 Gly	119 Leu 0	ser	Ala	Glu Ser	Arg 1215 Leu	120 Ala
118 Leu Val	Val Thr	Gly Gly	Ile Tyr 122	Glu 120: Asn	1190 Phe 5 Asp	Lys Pro	Glu Glu	Lys Thr 122	Leu 1210 Gly	Leu Leu Asn	Ser Ile	Ala Ile	Glu Ser	Arg 1215 Leu	120 Ala Phe
118 Leu Val Gln	Val Thr Ala	Gly Gly Met 123	Tyr 1220 Asn	Glu 120: Asn Uys	1190 Phe 5 Asp Glu	Lys Pro Leu	Glu Glu Ile 124	Lys Thr 122! Glu 0	Leu 1210 Gly 5 Lys	Leu Leu Asn Gly	Ser Ile His	Ala Ile Gly 124	Glu Ser 1230 Ile	Arg 1215 Leu D Arg	120 Ala Phe Leu
118 Leu Val Gln	Val Thr Ala	Gly Gly Met 123	Tyr 1220 Asn	Glu 120: Asn Uys	1190 Phe 5 Asp Glu	Lys Pro Leu	Glu Glu Ile 124	Lys Thr 122! Glu 0	Leu 1210 Gly 5 Lys	Leu Leu Asn Gly	Ser Ile His	Ala Ile Gly 124	Glu Ser 1230 Ile	Arg 1215 Leu D Arg	120 Ala Phe Leu
118 Leu Val Gln Leu	Val Thr Ala Glu 125	Gly Gly Met 123: Ala	Tyr 1220 Asn 5	Glu 120: Asn) Lys	Phe The Asp Glu	Lys Pro Leu Thr	Glu Glu Ile 124 Gly	Lys Thr 122: Glu O Gly	Leu 1210 Gly 5 Lys Ile	Leu D Asn Gly	Ser Ile His Asp	Ala Ile Gly 124: Pro	Glu Ser 1230 Ile Lys	Arg 1215 Leu) Arg Glu	120 Ala Phe Leu Ser
118 Leu Val Gln Leu	Val Thr Ala Glu 125 Arg	Gly Gly Met 123: Ala	Tyr 1220 Asn 5	Glu 120: Asn) Lys	Phe The Asp Glu	Lys Pro Leu Thr 125	Glu Glu Ile 124 Gly	Lys Thr 122: Glu O Gly	Leu 1210 Gly 5 Lys Ile	Leu D Asn Gly	Ser Ile His Asp 126	Ala Ile Gly 124: Pro	Glu Ser 1230 Ile Lys	Arg 1215 Leu) Arg Glu	120 Ala Phe Leu Ser

Glu Leu Ser Glu Ile Leu Ser Asp Pro Ser Asp Asp Thr Lys Gly Phe

1285 1290 Phe Asp Pro Asn Thr Glu Glu Asn Leu Thr Tyr Leu Gln Leu Lys Glu 1300 1305 1310 Arg Cys Ile Lys Asp Glu Glu Thr Gly Leu Cys Leu Leu Pro Leu Lys 1320 1325 Glu Lys Lys Lys Gln Val Gln Thr Ser Gln Lys Asn Thr Leu Arg Lys 1335 1340 Arg Arg Val Val Ile Val Asp Pro Glu Thr Asn Lys Glu Met Ser Val 1350 1355 Gln Glu Ala Tyr Lys Lys Gly Leu Ile Asp Tyr Glu Thr Phe Lys Glu 1365 1370 Leu Cys Glu Gln Glu Cys Glu Trp Glu Glu Ile Thr Ile Thr Gly Ser 1380 1385 Asp Gly Ser Thr Arg Val Val Leu Val Asp Arg Lys Thr Gly Ser Gln 1400 Tyr Asp Ile Gln Asp Ala Ile Asp Lys Gly Leu Val Asp Arg Lys Phe 1415 1420 Phe Asp Gln Tyr Arg Ser Gly Ser Leu Ser Leu Thr Gln Phe Ala Asp 1430 1435 Met Ile Ser Leu Lys Asn Gly Val Gly Thr Ser Ser Met Gly Ser 1445 1450 1455 Gly Val Ser Asp Asp Val Phe Ser Ser Ser Arg His Glu Ser Val Ser 1465 Lys Ile Ser Thr Ile Ser Ser Val Arg Asn Leu Thr Ile Arg Ser Ser 1475 1480 1485 Ser Phe Ser Asp Thr Leu Glu Glu Ser Ser Pro Ile Ala Ala Ile Phe 1490 1495 1500 Asp Thr Glu Asn Leu Glu Lys Ile Ser Ile Thr Glu Gly Ile Glu Arg 1505 1510 1515 Gly Ile Val Asp Ser Ile Thr Gly Gln Arg Leu Leu Glu Ala Gln Ala 1525 1530 Cys Thr Gly Gly Ile Ile His Pro Thr Thr Gly Gln Lys Leu Ser Leu 1540 1545 1550 Gln Asp Ala Val Ser Gln Gly Val Ile Asp Gln Asp Met Ala Thr Ser 1555 1560 Val Lys Pro Ala Gln Lys Ala Phe Ile Gly Phe Glu Gly Val Lys Gly 1575 1580 Lys Lys Met Ser Ala Ala Glu Ala Val Lys Glu Lys Trp Leu Pro 1590 1595 Tyr Glu Ala Gly Gln Arg Phe Leu Glu Phe Gln Tyr Leu Thr Gly Gly 1605 1610 Leu Val Asp Pro Glu Val His Gly Arg Ile Ser Thr Glu Glu Ala Ile 1620 1625 Arg Lys Gly Phe Ile Asp Gly Arg Ala Ala Gln Arg Leu Gln Asp Thr 1640 1645 Ser Ser Tyr Ala Lys Ile Leu Thr Cys Pro Lys Thr Lys Leu Lys Ile 1655 1660 Ser Tyr Lys Asp Ala Ile Asn Arg Ser Met Val Glu Asp Ile Thr Gly 1665 1670 1675 Leu Arg Leu Leu Glu Ala Ala Ser Val Ser Ser Lys Gly Leu Pro Ser 1685 1690 Pro Tyr Asn Met Ser Ser Ala Pro Gly Ser Arg Ser Gly Ser Arg Ser 1700 1705

Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Ser Gly Ser Arg Arg

Gly Ser Phe Asp Ala Thr Gly Asn Ser Ser Tyr Ser Tyr Ser Tyr Ser 1730 1735 1740 Phe Ser Ser Ser Ile Gly His 1745 1750

<210> 73 <211> 1978

<211> 137

<213> Homo Sapiens

<400> 73 Met Ser Arg Pro Arg Phe Asn Pro Arg Gly Asp Phe Pro Leu Gln Arg Pro Arg Ala Pro Asn Pro Ser Gly Met Arg Pro Pro Gly Pro Phe Met 25 Arg Pro Gly Ser Met Gly Leu Pro Arg Phe Tyr Pro Ala Gly Arg Ala 40 Arg Gly Ile Pro His Arg Phe Ala Gly Leu Glu Ser Tyr Gln Asn Met 55 Gly Pro Gln Arg Met Asn Val Gln Val Thr Gln His Arg Thr Asp Pro 70 75 Arg Leu Thr Lys Glu Lys Leu Asp Phe His Glu Ala Gln Gln Lys Lys 90 Gly Lys Pro His Gly Ser Arg Trp Asp Asp Glu Pro His Ile Ser Ala 100 105 Ser Val Ala Val Lys Gln Ser Ser Val Thr Gln Val Thr Glu Gln Ser 120 115 Pro Lys Val Gln Ser Arg Tyr Thr Lys Glu Ser Ala Ser Ser Ile Leu 135 140 Ala Ser Phe Gly Leu Ser Asn Glu Asp Leu Glu Glu Leu Ser Arg Tyr 150 155 Pro Asp Glu Gln Leu Thr Pro Glu Asn Met Pro Leu Ile Leu Arg Asp 165 170 Ile Arg Met Arg Lys Met Gly Arg Arg Leu Pro Asn Leu Pro Ser Gln 180 185 Ser Arg Asn Lys Glu Thr Leu Gly Ser Glu Ala Val Ser Ser Asn Val 200 205 Ile Asp Tyr Gly His Ala Ser Lys Tyr Gly Tyr Thr Glu Asp Pro Leu 215 Glu Val Arg Ile Tyr Asp Pro Glu Ile Pro Thr Asp Glu Val Glu Asn 230 235 Glu Phe Gln Ser Gln Gln Asn Ile Ser Ala Ser Val Pro Asn Pro Asn 245 250 Val Ile Cys Asn Ser Met Phe Pro Val Glu Asp Val Phe Arg Gln Met 265 Asp Phe Pro Gly Glu Ser Ser Asn Asn Arg Ser Phe Phe Ser Val Glu 275 280 Ser Gly Thr Lys Met Ser Gly Leu His Ile Ser Gly Gly Gln Ser Val 295 300 Leu Glu Pro Ile Lys Ser Val Asn Gln Ser Ile Asn Gln Thr Val Ser 310 315 Gln Thr Met Ser Gln Ser Leu Ile Pro Pro Ser Met Asn Gln Gln Pro 330

Phe Ser Ser Glu Leu Ile Ser Ser Val Ser Gln Gln Glu Arg Ile Pro 340 345 350 His Glu Pro Val Ile Asn Ser Ser Asn Val His Val Gly Ser Arg Gly 360 Ser Lys Lys Asn Tyr Gln Ser Gln Ala Asp Ile Pro Ile Arg Ser Pro 375 380 Phe Gly Ile Val Lys Ala Ser Trp Leu Pro Lys Phe Ser His Ala Asp 390 395 Ala Gln Lys Met Lys Arg Leu Pro Thr Pro Ser Met Met Asn Asp Tyr 405 410 Tyr Ala Ala Ser Pro Arg Ile Phe Pro His Leu Cys Ser Leu Cys Asn 425 Val Glu Cys Ser His Leu Lys Asp Trp Ile Gln His Gln Asn Thr Ser 440 Thr His Ile Glu Ser Cys Arg Gln Leu Arg Gln Gln Tyr Pro Asp Trp 455 Asn Pro Glu Ile Leu Pro Ser Arg Arg Asn Glu Gly Asn Arg Lys Glu 470 475 Asn Glu Thr Pro Arg Arg Arg Ser His Ser Pro Ser Pro Arg Arg Ser 485 490 Arg Arg Ser Ser Ser Ser His Arg Phe Arg Arg Ser Arg Ser Pro Met 500 505 His Tyr Met Tyr Arg Pro Arg Ser Arg Ser Pro Arg Ile Cys His Arg 520 Phe Ile Ser Arg Tyr Arg Ser Arg Ser Arg Ser Arg Ser Pro Tyr Arg 535 540 Ile Arg Asn Pro Phe Arg Gly Ser Pro Lys Cys Phe Arg Ser Val Ser 555 Pro Glu Arg Met Ser Arg Arg Ser Val Arg Ser Ser Asp Arg Lys Lys 565 570 Ala Leu Glu Asp Val Val Gln Arg Ser Gly His Gly Thr Glu Phe Asn 585 Lys Gln Lys His Leu Glu Ala Ala Asp Lys Gly His Ser Pro Ala Gln 600 605 Lys Pro Lys Thr Ser Ser Gly Thr Lys Pro Ser Val Lys Pro Thr Ser 615 620 Ala Thr Lys Ser Asp Ser Asn Leu Gly Gly His Ser Ile Arg Cys Lys 630 635 Ser Lys Asn Leu Glu Asp Asp Thr Leu Ser Glu Cys Lys Gln Val Ser 650 Asp Lys Ala Val Ser Leu Gln Arg Lys Leu Arg Lys Glu Gln Ser Leu 665 His Tyr Gly Ser Val Leu Leu Ile Thr Glu Leu Pro Glu Asp Gly Cys 680 Thr Glu Glu Asp Val Arg Lys Leu Phe Gln Pro Phe Gly Lys Val Asn 695 Asp Val Leu Ile Val Pro Tyr Arg Lys Glu Ala Tyr Leu Glu Met Glu 710 715 Phe Lys Glu Ala Ile Thr Ala Ile Met Lys Tyr Ile Glu Thr Thr Pro 725 730 Leu Thr Ile Lys Gly Lys Ser Val Lys Ile Cys Val Pro Gly Lys Lys 745 Lys Ala Gln Asn Lys Glu Val Lys Lys Thr Leu Glu Ser Lys Lys 760 765 Val Ser Ala Ser Thr Leu Lys Arg Asp Ala Asp Ala Ser Lys Ala Val 775 Glu Ile Val Thr Ser Thr Ser Ala Ala Lys Thr Gly Gln Ala Lys Ala

785					790					795					800
Cys	Val	Ala	Lys	Val	Asn	Lys	Ser	Thr	Gly	Lys	Ser	Ala	Ser	Ser	Val
				805					810					815	
Lys	Ser	Val	Val	Thr	Val	Ala	Val	Lys	Gly	Asn	Lys	Ala	Ser	Ile	Lys
			820					825					830		
Thr	Ala	Lys	Ser	Gly	Gly	Lys	Lys	Ser	Leu	Glu	Ala	Lys	Lys	Thr	Glv
		835		-	-	-	840					845	•		•
Asn	Val	Lys	Asn	Lys	Asp	Ser	Asn	Lys	Pro	Val	Thr	Ile	Pro	Glu	Asn
	850	-		-	_	855					860				
Ser	Glu	Ile	Lys	Thr	Ser	Ile	Glu	Val	Lvs	Ala	Thr	Glu	Asn	Cvs	Ala
865			-		870				-	875					880
Lys	Glu	Ala	Ile	Ser	asp	Ala	Ala	Leu	Glu	Ala	Thr	Glu	Asn	Glu	Pro
-				885	-				890					895	
Leu	Asn	Lys	Glu	Thr	Glu	Glu	Met	Cvs	Val	Met	Leu	Val	Ser	Asn	Leu
		-	900					905					910		
Pro	Asn	Lvs	Gly	Tyr	Ser	Val	Glu	Glu	Val	Tyr	asp	Leu	Ala	Lvs	Pro
		915	-	•			920			-	_	925			
Phe	Gly	Gly	Leu	Lys	Asp	Ile	Leu	Ile	Leu	Ser	Ser	His	Lvs	Lvs	Ala
	930	-		-	-	935					940		-	- 2	
Tvr	Ile	Glu	Ile	Asn	Arq	Lvs	Ala	Ala	Glu	Ser	Met.	Val	Lvs	Phe	Tvr
945					950					955					960
	Cvs	Phe	Pro	Val			Asp	Glv	Asn		Leu	Ser	Ile	Ser	
	-2-			965				2	970					975	
Ala	Pro	Glu	Asn	Met	Asn	Ile	Lys	Asp	Glu	Glu	Ala	Ile	Phe	Ile	Thr
			980					985					990		
Leu	Val	Lvs		Asn	Asp	Pro	Glu			Ile	Asp	Thr		Tvr	Asp
		995					1000					1009		-2-	
Ara	Phe	Val	His	Leu	Asp	Asn	Leu		Glu	Asp	Glv			Cvs	Va l
_	101					101					102			-1-	
Leu	Cvs	Val	Glv	Leu	Gln		Gly	Lvs	Val	Asp			Va1	Phe	Tle
102					103		2	-2-		103					104
Ser	Asn	Arq	Asn	Lvs	Ala	Ile	Leu	Gln	Leu	Asp	Ser	Pro	Glu	Ser	Ala
		_		104					105					105	
Gln	Ser	Met	Tyr	Ser	Phe	Leu	Lys	Gln			Gln	Asn	Ile		
			106				-	106					107		
His	Met	Leu	Thr	Cys	Ser	Leu	Ser			Ile	Asp	Leu			Val
		107					108					108			
Gln	Ile	Glu	His	Asp	Pro	Glu	Leu	Glu	Lvs	Glu	Ser			Len	Lvs
	109					109					110				-,-
Asn	Ser	Pro	Ile	Asp	Glu	Ser	Glu	Val	Gln	Thr			Asp	Ser	Pro
110					111					111					112
		Lvs	Pro	Asn			Glu	Glu	Glu			Pro	Ser	Ile	
				112					113					113	
Thr	Glu	Thr	Len			Gln	Glu	Glu			Glu	Glu	Glu		
			114					114		-7.0			115		014
Lvs	Ala	Thr			Ser	Asp	Phe			Glu	Thr	Len			Glu
-2-		115					116					116		200	
Thr	Gln			Glu	Val	Lvs	Glu		Tle	Pro	T.e.11			Ser	αla
	117					117					118			DCI	nau
Ser			Tle	Glu	Gln		Thr	Glu	Δsn	Δla			Cve	λla	T.411
118					119				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	119		014	Cys	ALG	120
		Gln	Met	Phe			Asp	T.011	Glin			Glar	2010	Glu	
	0211	0111		120		DCI	Aup	Deu	121		Lys	GTĀ	ALG	121	
Tla	Zen	Dro	Lave			Len	Leu	Dro			Co.	1727	Dh ~		
116	noil	0	122		ита	neu	. neu	122		АБР	ser	val	123		GIU
			122					144	د				123	U	

Glu Arg Asn Leu Lys Gly Ile Leu Glu Glu Ser Pro Ser Glu Ala Glu 1235 1240 1245

Asp Phe Ile Ser Gly Ile Thr Gln Thr Met Val Glu Ala Val Ala Glu 1250 1255 1260

Val Glu Lys Asn Glu Thr Val Ser Glu Ile Leu Pro Ser Thr Cys Ile 1265 1270 1275 128

Val Thr Leu Val Pro Gly Ile Pro Thr Gly Asp Glu Lys Thr Val Asp 1285 1290 1295

Lys Glu Phe Asn Thr Lys Glu Thr Arg Met Asp Leu Gln Ile Gly Thr 1315 1320 1325

Glu Lys Ala Glu Lys Asn Glu Gly Arg Met Asp Ala Glu Lys Val Glu 1330 1335 1340

Lys Met Ala Ala Met Lys Glu Lys Pro Ala Glu Asn Thr Leu Phe Lys 1345 Ala Tyr Pro Asn Lys Gly Val Gly Gln Ala Asn Lys Pro Asp Glu Thr

Ser Lys Thr Ser Ile Leu Ala Val Ser Asp Val Ser Ser Ser Lys Pro

1380 1385 1390 Ser Ile Lys Ala Val Ile Val Ser Ser Pro Lys Ala Lys Ala Thr Val

1410 1415 1420 Gln Ile Asn Ala Glu Lys Lys Leu Ser Ala Lys Glu Phe Gly Leu Leu 1425 1430 1435 144

1425 1430 1435 144 Lys Pro Thr Ser Ala Arg Ser Gly Leu Ala Glu Ser Ser Ser Lys Phe 1445 1450 1450

Lys Pro Thr Gln Ser Ser Leu Thr Arg Gly Gly Ser Gly Arg Ile Ser 1460 1465 1470

Ala Leu Gln Gly Lys Leu Ser Lys Leu Asp Tyr Arg Asp Ile Thr Lys \$1475\$ \$1480

Gln Ser Gln Glu Thr Glu Ala Arg Pro Ser Ile Met Lys Arg Asp Asp 1490 1500

Ser Asn Asn Lys Thr Leu Ala Glu Gln Asn Thr Lys Asn Pro Lys Ser 1505 1510 1515 152 Thr Thr Gly Arg Ser Ser Lys Ser Lys Glu Glu Pro Leu Phe Pro Phe

1525 1530 1535 Asn Leu Asp Glu Phe Val Thr Val Asp Glu Val Ile Glu Glu Val Asn

\$1540\$ \$1545\$ \$1550\$ Pro Ser Gln Ala Lys Gln Asn Pro Leu Lys Gly Lys Arg Lys Glu Thr

1555 1560 1565 Leu Lys Asn Val Pro Phe Ser Glu Leu Asn Leu Lys Lys Lys Lys Gly 1570 1575 1580

Lys Thr Ser Thr Pro Arg Gly Val Glu Glu Glu Leu Ser Phe Val Thr 1585 1590 1595 160

Leu Asp Glu Ile Gly Glu Glu Glu Asp Ala Ala Ala His Leu Ala Gln 1605 1615 Ala Leu Val Thr Val Asp Glu Val Ile Asp Glu Glu Glu Leu Asp Met

Ala Leu Val Thr Val Asp Glu Val Ile Asp Glu Glu Glu Leu Asn Met
1620 1625 1630

Glu Glu Met Val Lys Asn Ser Asn Ser Leu Phe Thr Leu Asp Glu Leu 1635 1640 1645

lle Asp Gln Asp Asp Cys Ile Ser His Ser Glu Pro Lys Asp Val Thr 1650 1650 Val Leu Ser Val Ala Glu Glu Gln Asp Leu Leu Lys Gln Glu Arg Leu

1665 1670 1675 168

Val Thr Val Asp Glu Ile Gly Glu Val Glu Glu Leu Pro Leu Asn Glu
1685 1690 1695

Ser Ala Asp Ile Thr Phe Ala Thr Leu Asn Thr Lys Gly Asn Glu Gly
1700 1705 1710

Asp Ile Val Arg Asp Ser Ile Gly Phe Ile Ser Ser Gln Val Pro Glu
1715 1720

Asp Pro Ser Thr Leu Val Thr Val Asp Glu Ile Gln Asp Asp Ser Ser

Asp Pro Ser Thr Leu Val Thr Val Asp Glu Ile Gln Asp Asp Ser Ser 1730 1735 1740

Asp Leu His Leu Val Thr Leu Asp Glu Val Thr Glu Glu Asp Glu Asp

1745 1750 1755 176 Ser Leu Ala Asp Phe Asn Asn Leu Lys Glu Glu Leu Asn Phe Val Thr 1765 1770 1770

Val Asp Glu Val Gly Glu Glu Glu Asp Gly Asp Asn Asp Leu Lys Val 1780 1785 1790

Glu Leu Ala Gln Ser Lys Asn Asp His Pro Thr Asp Lys Lys Gly Asn 1795 1800 1805

Arg Lys Lys Arg Ala Val Asp Thr Lys Lys Thr Lys Leu Glu Ser Leu 1810 1815 1820

Ser Gln Val Gly Pro Val Asn Glu Asn Val Met Glu Glu Asp Leu Lys 1825 1830 1835 184 Thr Met Ile Glu Arg Ris Leu Thr Ala Lys Thr Pro Thr Lys Arg Val

1845 1850 1855 Arg Ile Gly Lys Thr Leu Pro Ser Glu Lys Ala Val Val Thr Glu Pro

1860 1865 1879 Glu Glu Glu Ala Phe Gln Met Ser Glu Val Asp Glu Glu Ser

1875 1880 1885 Gly Leu Lys Asp Ser Glu Pro Glu Arg Lys Arg Lys Thr Glu Asp

1890 1895 1900 Ser Ser Ser Gly Lys Ser Val Ala Ser Asp Val Pro Glu Glu Leu Asp

1905 1910 1915 192
Phe Leu Val Pro Lys Ala Gly Phe Phe Cys Pro Ile Cys Ser Leu Phe

1925 1930 1935 Tyr Ser Gly Glu Lys Ala Met Thr Asn His Cys Lys Ser Thr Arg His 1940 1945 1950

Lys Gln Asn Thr Glu Lys Phe Met Ala Lys Gln Arg Lys Glu Lys Glu 1955 1960 1965

Gln Asn Glu Ala Glu Glu Arg Ser Ser Arg 1970 1975

<210> 74

<211> 366 <212> PRT

<213> Homo Sapiens

<400> 74

Met Arg Val Met Ala Pro Arg Thr Leu Ile Leu Leu Leu Ser Gly Ala 1 5 10 15 Leu Ala Leu Thr Glu Thr Trp Ala Gly Ser His Ser Met Arg Tyr Phe 20 25 30 Tyr Thr Ala Val Ser Arg Pro Gly Arg Gly Glu Pro His Phe Ile Ala $\frac{1}{2}$

35 40 45

Val Gly Tyr Val Asp Asp Thr Gln Phe Val Arg Phe Asp Ser Asp Ala
50 55

Ala Ser Pro Arg Gly Glu Pro Arg Ala Pro Trp Val Glu Glu Glu Gly

65 70 75 Pro Glu Tyr Trp Asp Arg Glu Thr Gln Lys Tyr Lys Arg Gln Ala Gln Thr Asp Arg Val Ser Leu Arg Asn Leu Arg Gly Tyr Tyr Asn Gln Ser 100 105 Glu Ala Gly Ser His Ile Ile Gln Arg Met Tyr Gly Cys Asp Val Gly 115 120 125 Pro Asp Gly Arg Leu Leu Arg Gly Tyr Asp Gln Tyr Ala Tyr Asp Gly 135 140 Lys Asp Tyr Ile Ala Leu Asn Glu Asp Leu Arg Ser Trp Thr Ala Ala 150 155 Asp Thr Ala Ala Gln Ile Thr Gln Arg Lys Trp Glu Ala Ala Arg Glu 165 170 Ala Glu Gln Leu Arg Ala Tyr Leu Glu Gly Leu Cys Val Glu Trp Leu 185 Arg Arg Tyr Leu Lys Asn Gly Lys Glu Thr Leu Gln Arg Ala Glu His 195 200 Pro Lys Thr His Val Thr His His Pro Val Ser Asp His Glu Ala Thr 215 220 Leu Arg Cys Trp Ala Leu Gly Phe Tyr Pro Ala Glu Ile Thr Leu Thr 230 235 Trp Gln Trp Asp Gly Glu Asp Gln Thr Gln Asp Thr Glu Leu Val Glu 245 250 Thr Arg Pro Ala Gly Asp Gly Thr Phe Gln Lys Trp Ala Ala Val Val 265 Val Pro Ser Gly Glu Glu Gln Arg Tyr Thr Cys His Val Gln His Glu 280 Gly Leu Pro Glu Pro Leu Thr Leu Arg Trp Glu Pro Ser Ser Gln Pro 295 300 Thr Ile Pro Ile Val Gly Ile Val Ala Gly Leu Ala Val Leu Ala Val 310 315 Leu Ala Val Leu Gly Ala Val Val Ala Val Val Met Cys Arg Arg Lys 325 330 Ser Ser Gly Gly Lys Gly Gly Ser Cys Ser Gln Ala Ala Ser Ser Asn 340 345 Ser Ala Gln Gly Ser Asp Glu Ser Leu Ile Ala Cys Lys Ala 355 360

> <210> 75 <211> 240 <212> PRT

<213> Homo Sapiens

<400> 75

85 90 Glu Tyr Leu Ala Trp Gln His Thr Thr Leu Arg Arg Ser Cys Leu Arg 100 105 Ala Leu Trp His Lys Val Met Phe Pro Val Phe Leu Gly Gly Pro Val 120 Ser Pro Gln Thr Leu Ala Ala Thr Leu Ala Glu Leu Asp Val Thr Leu 135 140 Gln Leu Leu Glu Asp Lys Phe Leu Gln Asn Lys Ala Phe Leu Thr Gly 150 155 Pro His Ile Ser Leu Ala Asp Leu Val Ala Ile Thr Glu Leu Met His 165 170 Pro Val Gly Ala Gly Cys Gln Val Phe Glu Gly Arg Pro Lys Leu Ala 185 Thr Trp Arg Gln Arg Val Glu Ala Ala Val Gly Glu Asp Leu Phe Gln 200 Glu Ala His Glu Val Ile Leu Lys Ala Lys Asp Phe Pro Pro Ala Asp 215 220 Pro Thr Ile Lys Gln Lys Leu Met Pro Trp Val Leu Ala Met Ile Arq 235

<210> 76

<211> 953

<212> PRT

<213> Homo Sapiens

<400> 76

Met Ile Thr Ser Ala Ala Gly Ile Ile Ser Leu Leu Asp Glu Asp Glu 5 10 Pro Gln Leu Lys Glu Phe Ala Leu His Lys Leu Asn Ala Val Val Asn 2.5 Asp Phe Trp Ala Glu Ile Ser Glu Ser Val Asp Lys Ile Glu Val Leu 40 Tyr Glu Asp Glu Gly Phe Arg Ser Arg Gln Phe Ala Ala Leu Val Ala 55 Ser Lys Val Phe Tyr His Leu Gly Ala Phe Glu Glu Ser Leu Asn Tyr 70 75 Ala Leu Gly Ala Arg Asp Leu Phe Asn Val Asn Asp Asn Ser Glu Tyr 85 90 Val Glu Thr Ile Ile Ala Lys Cys Ile Asp His Tyr Thr Lys Gln Cys 105 110 Val Glu Asn Ala Asp Leu Pro Glu Gly Glu Lys Lys Pro Ile Asp Gln 120 Arg Leu Glu Gly Ile Val Asn Lys Met Phe Gln Arg Cys Leu Asp Asp 135 His Lys Tyr Lys Gln Ala Ile Gly Ile Ala Leu Glu Thr Arg Arg Leu 150 155 Asp Val Phe Glu Lys Thr Ile Leu Glu Ser Asn Asp Val Pro Gly Met 165 170 Leu Ala Tyr Ser Leu Lys Leu Cys Met Ser Leu Met Gln Asn Lys Gln 185 Phe Arg Asn Lys Val Leu Arg Val Leu Val Lys Ile Tyr Met Asn Leu 200 Glu Lys Pro Asp Phe Ile Asn Val Cys Gln Cys Leu Ile Phe Leu Asp 215 Asp Pro Gln Ala Val Ser Asp Ile Leu Glu Lys Leu Val Lys Glu Asp

Asn Leu Leu Met Ala Tyr Gln Ile Cys Phe Asp Leu Tyr Glu Ser Ala Ser Gln Gln Phe Leu Ser Ser Val Ile Gln Asn Leu Arg Thr Val Gly Thr Pro Ile Ala Ser Val Pro Gly Ser Thr Asn Thr Gly Thr Val Pro Gly Ser Glu Lys Asp Ser Asp Ser Met Glu Thr Glu Glu Lys Thr Ser Ser Ala Phe Val Gly Lys Thr Pro Glu Ala Ser Pro Glu Pro Lys Asp Gln Thr Leu Lys Met Ile Lys Ile Leu Ser Gly Glu Met Ala Ile Glu Leu His Leu Gln Phe Leu Ile Arg Asn Asn Asn Thr Asp Leu Met Ile Leu Lys Asn Thr Lys Asp Ala Val Arg Asn Ser Val Cys His Thr Ala Thr Val Ile Ala Asn Ser Phe Met His Cys Gly Thr Thr Ser Asp Gln Phe Leu Arg Asp Asn Leu Glu Trp Leu Ala Arg Ala Thr Asn Trp Ala Lys Phe Thr Ala Thr Ala Ser Leu Gly Val Ile His Lys Gly His Glu Lys Glu Ala Leu Gln Leu Met Ala Thr Tyr Leu Pro Lys Asp Thr Ser Pro Gly Ser Ala Tyr Gln Glu Gly Gly Leu Tyr Ala Leu Gly Leu Ile His Ala Asn His Gly Gly Asp Ile Ile Asp Tyr Leu Leu Asn Gln Leu Lys Asn Ala Ser Asn Asp Ile Val Arg His Gly Gly Ser Leu Gly Leu Gly Leu Ala Ala Met Gly Thr Ala Arg Gln Asp Val Tyr Asp Leu Leu Lys Thr Asn Leu Tyr Gln Asp Asp Ala Val Thr Gly Glu Ala Ala Gly Leu Ala Leu Gly Leu Val Met Leu Gly Ser Lys Asn Ala Gln Ala Ile Glu Asp Met Val Gly Tyr Ala Gln Glu Thr Gln His Glu Lys Ile Leu Arg Gly Leu Ala Val Gly Ile Ala Leu Val Met Tyr Gly Arg Met Glu Glu Ala Asp Ala Leu Ile Glu Ser Leu Cys Arg Asp Lys Asp Pro Ile Leu Arg Arg Ser Gly Met Tyr Thr Val Ala Met Ala Tyr Cys Gly Ser Gly Asn Asn Lys Ala Ile Arg Arg Leu Leu His Val Ala Val Ser Asp Val Asn Asp Asp Val Arg Ser Ala Ala Val Glu Ser Leu Gly Phe Ile Leu Phe Arg Thr Pro Glu Gln Cys Pro Ser Val Val Ser Leu Leu Ser Glu Ser Tyr Asn Pro His Val Arg Tyr Gly Ala Ala Met Ala Leu Gly Ile Cys Cys Ala Gly Thr Gly Asn Lys Glu Ala Ile Asn Leu Leu

Glu Pro Met Thr Asn Asp Pro Val Asn Tyr Val Arg Gln Gly Ala Leu 680 Ile Ala Ser Ala Leu Ile Met Ile Gln Gln Thr Glu Ile Thr Cys Pro 695 700 Lys Val Asn Gln Phe Arg Gln Leu Tyr Ser Lys Val Ile Asn Asp Lys 710 715 His Asp Asp Val Met Ala Lys Phe Gly Ala Ile Leu Ala Gln Gly Ile 725 730 Leu Asp Ala Gly Gly His Asn Val Thr Ile Ser Leu Gln Ser Arg Thr 745 Gly His Thr His Met Pro Ser Val Val Gly Val Leu Val Phe Thr Gln 760 765 Phe Trp Phe Trp Phe Pro Leu Ser His Phe Leu Ser Leu Ala Tyr Thr 775 Pro Thr Cys Val Ile Gly Leu Asn Lys Asp Leu Lys Met Pro Lys Val 790 795 Gln Tyr Lys Ser Asn Cys Lys Pro Ser Thr Phe Ala Tyr Pro Ala Pro 810 Leu Glu Val Pro Lys Glu Lys Glu Lys Glu Lys Val Ser Thr Ala Val 825 Leu Ser Ile Thr Ala Lys Ala Lys Lys Glu Lys Glu Lys Glu Lys 835 840 Lys Glu Glu Lys Met Glu Val Asp Glu Ala Glu Lys Lys Glu Glu 855 860 Lys Glu Lys Lys Lys Glu Pro Glu Pro Asn Phe Gln Leu Leu Asp Asn 870 875 Pro Ala Arg Val Met Pro Ala Gln Leu Lys Val Leu Thr Met Pro Glu 885 890 Thr Cys Arg Tyr Gln Pro Phe Lys Pro Leu Ser Ile Gly Gly Ile Ile 900 905 Ile Leu Lys Asp Thr Ser Glu Asp Ile Glu Glu Leu Val Glu Pro Val 920 Ala Ala His Gly Pro Lys Ile Glu Glu Glu Glu Glu Glu Pro Glu Pro 935 940 Pro Glu Pro Phe Glu Tyr Ile Asp Asp 945 950

<210> 77 <211> 335

<212> PRT

<213> Homo Sapiens

<400> 77

WO 99/04265 PCT/US98/14679

Glu Ser Thr Gly Val Phe Thr Thr Met Glu Lys Ala Gly Ala His Leu 105 Gln Gly Gly Ala Lys Arg Val Ile Ile Ser Ala Pro Ser Ala Asp Ala 120 Pro Met Phe Val Met Gly Val Asn His Glu Lys Tyr Asp Asn Ser Leu 135 140 Lys Ile Ile Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Leu 150 155 Ala Lys Val Ile His Asp Asn Phe Gly Ile Val Glu Gly Leu Met Thr 165 170 Thr Val His Ala Ile Thr Ala Thr Gln Lys Thr Val Asp Gly Pro Ser 180 185 Gly Lys Leu Trp Arg Asp Gly Arg Gly Ala Leu Gln Asn Ile Ile Pro 200 Ala Ser Thr Gly Ala Ala Lys Ala Val Gly Lys Val Ile Pro Glu Leu 215 Asn Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Thr Ala Asn Val 230 235 Ser Val Val Asp Leu Thr Cys Arg Leu Glu Lys Pro Ala Lys Tyr Asp 245 250 Asp Ile Lys Lys Val Val Lys Gln Ala Ser Glu Gly Pro Leu Lys Gly 260 265 Ile Leu Gly Tyr Thr Glu His Gln Val Val Ser Ser Asp Phe Asn Ser 275 280 Asp Thr His Ser Ser Thr Phe Asp Ala Gly Ala Gly Ile Ala Leu Asn 295 300 Asp His Phe Val Lys Leu Ile Ser Trp Tyr Asp Asn Glu Phe Gly Tyr 310 315 Ser Asn Arg Val Val Asp Leu Met Ala His Met Ala Ser Lys Glu 330

<210> 78 <211> 117

<212> PRT <213> Homo Sapiens

<400> 78

Met Val Gln Arg Leu Thr Tyr Arg Arg Arg Leu Ser Tyr Asn Thr Ala 1

1 5 10 10 15

Ser Asn Lys Thr Arg Leu Ser Arg Thr Pro Gly Asn Arg Ile Val Tyr 25 30

Leu Tyr Thr Lys Lys Val Gly Lys Ala Pro Lys Ser Ala Cys Gly Val 35 40 40

Cys Pro Gly Lys Leu Arg Gly Val Arg Pro Val Arg Pro Lys Val Leu 50 60

Met Arg Leu Ser Lys Thr Lys Lys His Val Ser Arg Ala Tyr Gly Gly Gf 70 75

Ser Met Cys Ala Lys Cys Val Arg Asp 11e Lys Arg Ala Phe Leu 85 90 95

Ile Glu Glu Gln Lys Ile Ile Val Lys Val Leu Lys Ala Gln Ala G

105

Ser Gln Lys Ala Lys

115

<210> 79

1,0

DADY

WO 99/04265 PCT/US98/14679

<211> 614 <212> PRT <213> Homo Sapiens

<400> 79 Arg Ser Gly Gln Pro Arg Ala Glu Gly Leu Gly Ala Gly Ala Ala Gly 10 Pro Leu Arg Ala Met Ala Ala Pro Val Lys Gly Asn Arg Lys Gln Ser 20 25 Thr Glu Gly Asp Ala Leu Asp Pro Pro Ala Ser Pro Lys Pro Ala Gly 4.0 Lys Gln Asn Gly Ile Gln Asn Pro Ile Ser Leu Glu Asp Ser Pro Glu 55 60 70 75 Phe Leu Val Ser Leu Tyr Lys Phe Met Lys Glu Arg His Thr Pro Ile 85 90 Glu Arg Val Pro His Leu Gly Phe Lys Gln Ile Asn Leu Trp Lys Ile 100 105 Tyr Lys Ala Val Glu Lys Leu Gly Ala Tyr Glu Leu Val Thr Gly Arg 120 125 Arg Leu Trp Lys Asn Val Tyr Asp Glu Leu Gly Gly Ser Pro Gly Ser 135 140 Thr Ser Ala Ala Thr Cys Thr Arg Arg His Tyr Glu Arg Leu Val Leu 150 155 Pro Tyr Val Arg His Leu Lys Gly Glu Asp Asp Lys Pro Leu Pro Thr 165 170 175 Ser Lys Pro Arg Lys Gln Tyr Lys Met Ala Lys Glu Asn Arg Gly Asp 185 Asp Gly Ala Thr Glu Arg Pro Lys Lys Ala Lys Glu Glu Arg Arg Met 200 Asp Gln Met Met Pro Gly Lys Thr Lys Ala Asp Ala Ala Asp Pro Ala 215 220 Pro Leu Pro Ser Gln Glu Pro Pro Arg Asn Ser Thr Glu Gln Gln Gly 225 230 235 Leu Ala Ser Gly Ser Ser Val Ser Phe Val Gly Ala Ser Gly Cys Pro 245 250 Glu Ala Tyr Lys Arg Leu Leu Ser Ser Phe Tyr Cys Lys Gly Thr His 260 265 Gly Ile Met Ser Pro Leu Ala Lys Lys Leu Leu Ala Gln Val Ser 280 Lys Val Glu Ala Leu Gln Cys Gln Glu Glu Gly Cys Arg His Gly Ala 295 300 Glu Pro Gln Ala Ser Pro Ala Val His Leu Pro Glu Ser Pro Gln Ser 310 315 Pro Lys Gly Leu Thr Glu Asn Ser Arg His Arg Leu Thr Pro Gln Glu 325 330 Gly Leu Gln Ala Pro Gly Gly Ser Leu Arg Glu Glu Ala Gln Ala Gly 340 345 Pro Cys Pro Ala Ala Pro Ile Phe Lys Gly Cys Phe Tyr Thr His Pro 360 Thr Glu Val Leu Lys Pro Val Ser Gln His Pro Arg Asp Phe Phe Ser WO 99/04265 PCT/US98/14679

Ser Val Lys Glu Pro Gln Leu Val Trp Gly Gly Asp Ala Asn Arg Pro 410 Ser Ala Phe His Lys Gly Gly Ser Arg Lys Gly Ile Leu Tyr Pro Lys 425 Pro Lys Ala Cys Trp Val Ser Pro Met Ala Lys Val Pro Ala Glu Ser 440 Pro Thr Leu Pro Pro Thr Phe Pro Ser Ser Pro Gly Leu Gly Ser Lys 455 460 Arg Ser Leu Glu Glu Glu Gly Ala Ala His Ser Gly Lys Arg Leu Arg 470 475 Ala Val Ser Pro Phe Leu Lys Glu Ala Asp Ala Lys Lys Cys Gly Ala 485 490 Lys Pro Ala Gly Ser Gly Leu Val Ser Cys Leu Leu Gly Pro Ala Leu 500 505 Gly Pro Val Pro Pro Glu Ala Tyr Arg Gly Thr Met Leu His Cys Pro 520 Leu Asn Phe Thr Gly Thr Pro Gly Pro Leu Lys Gly Gln Ala Ala Leu 535 Pro Phe Ser Pro Leu Val Ile Pro Ala Phe Pro Ala His Phe Leu Ala 550 555 Thr Ala Gly Pro Ser Pro Met Ala Ala Gly Leu Met His Phe Pro Pro 565 570 Thr Ser Phe Asp Ser Ala Leu Arg His Arg Leu Cys Pro Ala Ser Ser 580 585 Ala Trp His Ala Pro Pro Val Thr Thr Tyr Ala Ala Pro His Phe Phe 600 His Leu Asn Thr Lys Leu 610

<210> 80

<211> 114 <212> PRT

<400> 80

<213> Homo Sapiens

Met Ala Ser Val Ser Glu Leu Ala Cys Ile Tyr Ser Ala Leu Ile Leu 1 His Asp Asp Glu Val Thr Val Thr Glu Asp Lys Ile Asn Ala Leu Ile 20 25 Lys Ala Ala Gly Val Asn Val Glu Pro Phe Trp Pro Gly Leu Phe Ala 40 Lys Ala Leu Ala Asn Val Asn Ile Gly Ser Leu Ile Cys Asn Val Gly 55 Ala Gly Gly Pro Ala Pro Ala Ala Gly Ala Ala Pro Ala Gly Gly Pro 70 75 Ala Pro Ser Thr Ala Ala Ala Pro Ala Glu Glu Lys Lys Val Glu Ala 90 Lys Lys Glu Glu Ser Glu Glu Ser Asp Asp Met Gly Phe Gly Leu 105 Phe Asp

<210> 81 <211> 596

<212> PRT

<213> Homo Sapiens

<400> 81 Met Arg Arg Ala His Glu Gly Arg Glu Ile Pro Ser Leu Gly Gly Ala Arg Arg Glu Val Leu Gln Ala Gly Arg Ser Gln Arg Ala Ala Gly 25 Arg Arg Arg Arg Gln Glu Leu Glu Leu Gly Val Gly Ser Gly Arg 40 Pro Gly Gly Pro Pro Pro Gly Pro Gly Arg Arg Gly Thr Cys Ala Ala 55 Ala Leu Pro Pro Glu Trp Pro Arg Arg Thr Gly Leu Pro Arg Arg . 70 75 Gly Pro Arg Pro Pro Leu Ala Met Ala Lys Trp Leu Asn Lys Tyr Phe 85 90 Ser Leu Gly Asn Ser Lys Thr Lys Ser Pro Pro Gln Pro Pro Arg Pro 105 Asp Tyr Arg Glu Gln Arg Arg Gly Glu Arg Pro Ser Gln Pro Pro 120 Gln Ala Val Pro Gln Ala Ser Ser Ala Ala Ser Ala Ser Cys Gly Pro 135 140 Ala Thr Ala Ser Cys Phe Ser Ala Ser Ser Gly Ser Leu Pro Asp Asp 150 155 Ser Gly Ser Thr Ser Asp Leu Ile Arg Ala Tyr Arg Ala Gln Lys Glu 165 170 175 Arg His Phe Gln Asp Pro Tyr Asn Gly Pro Gly Ser Ser Leu Arg Lys 185 Leu Arg Ala Met Cys Arg Leu Asp Tyr Cys Gly Gly Ser Gly Glu Pro 195 200 Gly Gly Val Gln Arg Ala Phe Ser Ala Ser Ser Ala Ser Gly Ala Ala 215 Gly Cys Cys Cys Ala Ser Ser Gly Ala Gly Ala Ala Ala Ser Ser Ser 230 235 Ser Ser Ser Gly Ser Pro His Leu Tyr Arg Ser Ser Ser Glu Arg Arg 245 250 Pro Ala Thr Pro Ala Glu Val Arg Tyr Ile Ser Pro Lys His Arg Leu 260 265 Ile Lys Val Glu Ser Ala Ala Gly Gly Gly Ala Gly Asp Pro Leu Gly 280 Gly Ala Cys Ala Gly Gly Arg Thr Trp Ser Pro Thr Ala Cys Gly Gly 295 300 Lys Lys Leu Leu Asn Lys Cys Ala Ala Ser Ala Ala Glu Glu Ser Gly 310 315 Ala Gly Lys Lys Asp Lys Val Thr Ile Ala Asp Asp Tyr Ser Asp Pro 330 Phe Asp Ala Lys Asn Asp Leu Lys Ser Lys Ala Gly Lys Gly Glu Ser 345 Ala Gly Tyr Met Glu Pro Tyr Glu Ala Gln Arg Ile Met Thr Glu Phe 360 365 Gln Arg Gln Glu Ser Val Arg Ser Gln His Lys Gly Ile Gln Leu Tyr 375 380 Asp Thr Pro Tyr Glu Pro Glu Gly Gln Ser Val Asp Ser Asp Ser Glu 390 395

Ser Thr Val Ser Pro Arg Leu Arg Glu Ser Lys Leu Pro Gln Asp Asp

Asp Arg Pro Ala Asp Glu Tyr Asp Gln Pro Trp Glu Trp Asn Arg Val 425 Thr Ser Pro Ala Leu Ala Ala Gln Phe Asn Gly Asn Glu Lys Arg Gln 440 Ser Ser Pro Ser Pro Ser Arq Asp Arq Arq Arq Gln Leu Arq Ala Pro 455 460 Gly Gly Gly Phe Lys Pro Ile Lys His Gly Ser Pro Glu Phe Cys Gly 470 475 Ile Leu Gly Glu Arg Val Asp Pro Ala Val Pro Leu Glu Lys Gln Ile 485 490 Trp Tyr His Gly Ala Ile Ser Arg Gly Asp Ala Glu Asn Leu Leu Arg 505 Leu Cys Lys Glu Cys Ser Tyr Leu Val Arg Asn Ser Gln Thr Ser Lys 515 520 His Asp Tyr Pro Leu Ser Leu Arg Ser Asn Gln Gly Phe Met His Met 535 540 Lys Leu Ala Lys Thr Lys Glu Lys Tyr Val Leu Gly Gln Asn Ser Pro 550 555 Pro Phe Asp Ser Val Pro Glu Val Ile His Tyr Tyr Thr Thr Arg Lys 565 570 Leu Pro Ile Lys Gly Ala Glu His Leu Ser Leu Leu Tyr Pro Val Ala 585 Val Arg Thr Leu 595

<210> 82 <211> 207 <212> PRT

<213> Homo Sapiens

<400> 82

Met Ser Pro Leu Leu Arg Arg Leu Leu Leu Ala Ala Leu Leu Gln Leu 10 Ala Pro Ala Gln Ala Pro Val Ser Gln Pro Asp Ala Pro Gly His Gln 20 25 Arg Lys Val Val Ser Trp Ile Asp Val Tyr Thr Arg Ala Thr Cys Gln 40 Pro Arg Glu Val Val Val Pro Leu Thr Val Glu Leu Met Gly Thr Val 55 Ala Lys Gln Leu Val Pro Ser Cys Val Thr Val Gln Arg Cys Gly Gly 70 Cys Cys Pro Asp Asp Gly Leu Glu Cys Val Pro Thr Gly Gln His Gln 90 Val Arg Met Gln Ile Leu Met Ile Arg Tyr Pro Ser Ser Gln Leu Gly 100 105 Glu Met Ser Leu Glu Glu His Ser Gln Cys Glu Cys Arg Pro Lys Lys 120 Lys Asp Ser Ala Val Lys Pro Asp Arg Ala Ala Thr Pro His His Arg 135 Pro Gln Pro Arg Ser Val Pro Gly Trp Asp Ser Ala Pro Gly Ala Pro 150 155 Ser Pro Ala Asp Ile Thr His Pro Thr Pro Ala Pro Gly Pro Ser Ala 165 170 His Ala Ala Pro Ser Thr Thr Ser Ala Leu Thr Pro Gly Pro Ala Ala 185

Ala Ala Ala Asp Ala Ala Ala Ser Ser Val Ala Lys Gly Gly Ala 195 200 205

<210> 83

<211> 429

<212> PRT

<213> Homo Sapiens

<400> 83 Glu Cys Asp Val Met Thr Tyr Val Arg Glu Thr Cys Gly Cys Cys Asp 10 Cys Glu Lys Arg Cys Gly Ala Leu Asp Val Val Phe Val Ile Asp Ser 25 Ser Glu Ser Ile Gly Tyr Thr Asn Phe Thr Leu Glu Lys Asn Phe Val 40 Ile Asn Val Val Asn Arg Leu Gly Ala Ile Ala Lys Asp Pro Lys Ser 55 Glu Thr Gly Thr Arg Val Gly Val Val Gln Tyr Ser His Glu Gly Thr 70 Phe Glu Ala Ile Gln Leu Asp Asp Glu His Ile Asp Ser Leu Ser Ser 85 90 Phe Lys Glu Ala Val Lys Asn Leu Glu Trp Ile Ala Gly Gly Thr Trp 105 Thr Pro Ser Ala Leu Lys Phe Ala Tyr Asp Arg Leu Ile Lys Glu Ser 115 120 Arg Arg Gln Lys Thr Arg Val Phe Ala Val Val Ile Thr Asp Gly Arg 135 His Asp Pro Arg Asp Asp Leu Asn Leu Arg Ala Leu Cys Asp Arg 150 Asp Val Thr Val Thr Ala Ile Gly Ile Gly Asp Met Phe His Glu Lys 165 170 His Glu Ser Glu Asn Leu Tyr Ser Ile Ala Cys Asp Lys Pro Gln Gln 180 185 Val Arg Asn Met Thr Leu Phe Ser Asp Leu Val Ala Glu Lys Phe Ile 195 200 205 Asp Asp Met Glu Asp Val Leu Cys Pro Asp Pro Gln Ile Val Cys Pro 215 220 Asp Leu Pro Cys Gln Thr Glu Leu Ser Val Ala Gln Cys Thr Gln Arg 230 235 Pro Val Asp Ile Val Phe Leu Leu Asp Gly Ser Glu Arg Leu Gly Glu 250 Gln Asn Phe His Lys Ala Arg Arg Phe Val Glu Gln Val Ala Arg Arg 265 Leu Thr Leu Ala Arg Arg Asp Asp Asp Pro Leu Asn Ala Arg Val Ala 280 Leu Leu Gln Phe Gly Gly Pro Gly Glu Gln Gln Val Ala Phe Pro Leu 295 300 Ser His Asn Leu Thr Ala Ile His Glu Ala Leu Glu Thr Thr Gln Tyr 310 315 Leu Asn Ser Phe Ser His Val Gly Ala Gly Val Val His Ala Ile Asn 330 Ala Ile Val Arg Ser Pro Arg Gly Gly Ala Arg Arg His Ala Glu Leu 340 345

Ser Phe Val Phe Leu Thr Asp Gly Val Thr Gly Asn Asp Ser Leu His 355 360 365

Glu Ser Ala His Ser Met Arg Asn Glu Asn Val Val Pro Thr Val Leu 370 375 380 380 Ala Leu Gly Ser Asp Val Asp Met Asp Val Leu Thr Thr Leu Ser Leu 385 390 395 400 Gly Asp Arg Ala Ala Val Phe His Glu Lys Asp Tyr Asp Ser Leu Ala 405 410 Gln Pro Gly Phe Phe Asp Arg Phe Ile Arg Trp Ile Cys

<210> 84 <211> 113 <212> PRT <213> Homo Sapiens

<400> 84

<210> 85 <211> 258 <212> PRT <213> Homo Sapiens

<400> 85

Met Ile Asn Ile Glu Ser Met Asp Thr Asp Lys Asp Asp Pro His Gly 1 - 5 Arg Leu Glu Tyr Thr Glu His Gln Gly Arg Ile Lys Asn Ala Arg Glu 25 Ala His Ser Gln Ile Glu Lys Arg Arg Arg Asp Lys Met Asn Ser Phe Ile Asp Glu Leu Ala Ser Leu Val Pro Thr Cys Asn Ala Met Ser Arg 55 Lys Leu Asp Lys Leu Thr Val Leu Arg Met Ala Val Gln His Met Lys 70 75 Thr Leu Arg Gly Ala Thr Asn Pro Tyr Thr Glu Ala Asn Tyr Lys Pro 85 90 Thr Phe Leu Ser Asp Asp Glu Leu Lys His Leu Ile Leu Arg Ala Ala 105 Asp Gly Phe Leu Phe Val Val Gly Cys Asp Arg Gly Lys Ile Leu Phe 120 Val Ser Glu Ser Val Phe Lys Ile Leu Asn Tyr Ser Gln Asn Asp Leu

135 140 Ile Gly Gln Ser Leu Phe Asp Tyr Leu His Pro Lys Asp Ile Ala Lys 150 155 Val Lys Glu Gln Leu Ser Ser Ser Asp Thr Ala Pro Arg Glu Arg Leu 165 170 Ile Asp Ala Lys Thr Gly Leu Pro Val Lys Thr Asp Ile Thr Pro Gly 185 Pro Ser Arg Leu Cys Ser Gly Ala Arg Arg Ser Phe Phe Cys Arg Met 200 Lys Cys Asn Arg Pro Ser Val Asn Val Glu Asp Lys Asn Phe Pro Ser 215 220 Thr Cys Ser Lys Lys Lys Ala Asp Arg Lys Ala Phe Cys Thr Ile His 230 235 Ser Thr Gly Tyr Phe Gly Ile Phe Thr Thr Arg Thr Ser Arg His Ile 245 250 Val Leu

<210> 86

<211> 569 <212> PRT

<213> Homo Sapiens

<400> 86

Met Ser Thr Met Val Tyr Ile Lys Glu Asp Lys Leu Glu Lys Leu Thr 10 Gln Asp Glu Ile Ile Ser Lys Thr Lys Gln Val Ile Gln Gly Leu Glu 20 25 Ala Leu Lys Asn Glu His Asn Ser Ile Leu Gln Ser Leu Leu Glu Thr 40 Leu Lys Cys Leu Lys Lys Asp Asp Glu Ser Asn Leu Val Glu Glu Lys 55 Ser Asn Met Ile Arg Lys Ser Leu Glu Met Leu Glu Leu Gly Leu Ser 75 Glu Ala Gln Val Met Met Ala Leu Ser Asn His Leu Asn Ala Val Glu 85 90 Ser Glu Lys Gln Lys Leu Arg Ala Gln Val Arg Arg Leu Cys Gln Glu 105 Asn Gln Trp Leu Arg Asp Glu Leu Ala Asn Thr Gln Gln Lys Leu Gln Lys Ser Glu Gln Ser Val Ala Gln Leu Glu Glu Glu Lys Lys His Leu 135 140 Glu Phe Met Asn Gln Leu Lys Lys Tyr Asp Asp Asp Ile Ser Pro Ser 150 155 Glu Asp Lys Asp Thr Asp Ser Thr Lys Glu Pro Leu Asp Asp Leu Phe 165 170 Pro Asn Asp Glu Asp Pro Gly Gln Gly Ile Gln Gln Gln His Ser 180 185 Ser Ala Ala Ala Ala Gln Gln Gly Gly Tyr Glu Ile Pro Ala Arg 200 Leu Arg Thr Leu His Asn Leu Val Ile Gln Tyr Ala Ser Gln Gly Arg 215 Tyr Glu Val Ala Val Pro Leu Cys Lys Gln Ala Leu Glu Asp Leu Glu 230 235 Lys Thr Ser Gly His Asp His Pro Asp Val Ala Thr Met Leu Asn Ile

				245					250					255	
Leu	Ala	Leu	Val	Tyr	Arg	Asp	Gln	Asn	Lys	Tyr	Lys	Asp	Ala	Ala	Asn
			260					265					270		
Leu	Leu	Asn	Asp	Ala	Leu	Ala	Ile	Arg	Glu	Lys	Thr	Leu	Gly	Lys	Asp
		275					280					285		-	-
His	Pro	Ala	Val	Ala	Ala	Thr	Leu	Asn	Asn	Leu	Ala	Val	Leu	Tyr	Glv
	290					295					300			-	-
Lys	Arg	Gly	Lys	Tyr	Lys	Glu	Ala	Glu	Pro	Leu	Cys	Lys	Arg	Ala	Leu
305					310					315	-		_		320
Glu	Ile	Arg	Glu	Lys	Val	Leu	Gly	Lys	Asp	His	Pro	Asp	Val	Ala	Lvs
				325				•	330			•		335	
Gln	Leu	Asn	Asn	Leu	Ala	Leu	Leu	Cys	Gln	Asn	Gln	Glv	Lvs	Tvr	Glu
			340					345				-	350	- 2 -	
Glu	Val	Glu	Tyr	Tyr	Tyr	Gln	Arq	Ala	Leu	Glu	Ile	Tvr	Gln	Thr	Lvs
		355		•	-		360					365			-2-
Leu	Gly	Pro	Asp	Asp	Pro	Asn	Val	Ala	Lys	Thr	Lys	Asn	Asn	Leu	Ala
	370					375			•		380				
Ser	Cys	Tyr	Leu	Lys	Gln	Gly	Lys	Phe	Lys	Gln	Ala	Glu	Thr	Leu	Tvr
385	•	-		-	390	•	-			395					400
Lys	Glu	Ile	Leu	Thr	Arq	Ala	His	Glu	Arq	Glu	Phe	Glv	Ser	Val	Asp
-				405	_				410					415	
Asp	Glu	Asn	Lys	Pro	Ile	Trp	Met	His	Ala	Glu	Glu	Arq	Glu	Glu	Cvs
			420			-		425					430		-,-
Lys	Gly	Lys	Gln	Lys	Asp	Gly	Thr	Ser	Phe	Gly	Glu	Tyr	Glv	Glv	Trp
		435		-	-	-	440			-		445		2	
Tyr	Lys	Ala	Cys	Lys	Val	Asp	Ser	Pro	Thr	Val	Thr	Thr	Thr	Leu	Lvs
	450					455					460				•
Asn	Leu	Gly	Ala	Leu	Tyr	Arg	Arg	Gln	Gly	Lys	Phe	Glu	Ala	Ala	Glu
465					470					475					480
Thr	Leu	Glu	Glu	Ala	Ala	Met	Arg	Ser	Arg	Lys	Gln	Gly	Leu	Asp	Asn
				485					490			-		495	
Val	His	Lys	Gln	Arg	Val	Ala	Glu	Val	Leu	Asn	Asp	Pro	Glu	Asn	Met
			500					505					510		
Glu	Lys	Arg	Arg	Ser	Arg	Glu	Ser	Leu	Asn	Val	Asp	Val	Val	Lys	Tyr
		515					520					525		-	-
Glu	Ser	Gly	Pro	Asp	Gly	Gly	Glu	Glu	Val	Ser	Met	Ser	Val	Glu	Trp
	530					535					540				-
Asn	Gly	Gly	Val	Ser	Gly	Arg	Ala	Ser	Phe	Cys	Gly	Lys	Arg	Gln	Gln
545					550					555	_		-		560
Gln	Gln	Trp	Pro	Gly	Arg	Arg	His	Arg							

<210> 87 <211> 736

<212> PRT

<213> Homo Sapiens

<400> 87

Met Glu Ala Leu Ile Pro Val Ile Asn Lys Leu Gln Asp Val Phe Asn 10 Thr Val Gly Ala Asp Ile Ile Gln Leu Pro Gln Ile Val Val Gly 20 25

Thr Gln Ser Ser Gly Lys Ser Ser Val Leu Glu Ser Leu Val Gly Arg

Asp Leu Leu Pro Arg Gly Thr Gly Ile Val Thr Arg Arg Pro Leu Ile

55 60 Leu Gln Leu Val His Val Thr Gln Glu Asp Lys Arg Lys Thr Thr Gly 70 75 Glu Glu Asn Gly Val Glu Ala Glu Glu Trp Gly Lys Phe Leu His Thr 85 Lys Asn Lys Leu Tyr Thr Asp Phe Asp Glu Ile Arg Gln Glu Ile Glu 100 105 Asn Glu Thr Glu Arg Ile Ser Gly Asn Asn Lys Gly Val Ser Pro Glu 120 Pro Ile His Leu Lys Ile Phe Ser Pro Asn Val Val Asn Leu Thr Leu 135 Val Asp Leu Pro Gly Met Thr Lys Val Pro Val Gly Asp Gln Pro Lys 155 150 Asp Ile Glu Leu Gln Ile Arg Glu Leu Ile Leu Arg Phe Ile Ser Asn 170 Pro Asn Ser Ile Ile Leu Ala Val Thr Ala Ala Asn Thr Asp Met Ala 180 185 Thr Ser Glu Ala Leu Lys Ile Ser Arg Glu Val Asp Pro Asp Gly Arg 195 200 Arg Thr Leu Ala Val Ile Thr Lys Leu Asp Leu Met Asp Ala Gly Thr 215 Asp Ala Met Asp Val Leu Met Gly Arg Val Ile Pro Val Lys Leu Gly 230 235 Ile Ile Gly Val Val Asn Arg Ser Gln Leu Asp Ile Asn Asn Lys Lys 245 250 Ser Val Thr Asp Ser Ile Arg Asp Glu Tyr Ala Phe Leu Gln Lys Lys 265 Tyr Pro Ser Leu Ala Asn Arg Asn Gly Thr Lys Tyr Leu Ala Arg Thr 280 Leu Asn Arg Leu Leu Met His His Ile Arg Asp Cys Leu Pro Glu Leu 295 300 Lys Thr Arg Ile Asn Val Leu Ala Ala Gln Tyr Gln Ser Leu Leu Asn 310 315 Ser Tyr Gly Glu Pro Val Asp Asp Lys Ser Ala Thr Leu Leu Gln Leu 325 330 Ile Thr Lys Phe Ala Thr Glu Tyr Cys Asn Thr Ile Glu Gly Thr Ala 340 345 Lys Tyr Ile Glu Thr Ser Glu Leu Cys Gly Gly Ala Arg Ile Cys Tyr 360 Ile Phe His Glu Thr Phe Gly Arg Thr Leu Glu Ser Val Asp Pro Leu 375 380 Gly Gly Leu Asn Thr Ile Asp Ile Leu Thr Ala Ile Arg Asn Ala Thr 390 395 Gly Pro Arg Pro Ala Leu Phe Val Pro Glu Val Ser Phe Glu Leu Leu 405 410 Val Lys Arg Gln Ile Lys Arg Leu Glu Glu Pro Ser Leu Arg Cys Val 420 425 Glu Leu Val His Glu Glu Met Gln Arg Ile Ile Gln His Cys Ser Asn 440 Tyr Ser Thr Gln Glu Leu Leu Arg Phe Pro Lys Leu His Asp Ala Ile 455 Val Glu Val Val Thr Cys Leu Leu Arg Lys Arg Leu Pro Val Thr Asn 470 475 Glu Met Val His Asn Leu Val Ala Ile Glu Leu Ala Tyr Ile Asn Thr 490

120

180

240

300

```
Lys His Pro Asp Phe Ala Asp Ala Cys Gly Leu Met Asn Asn Asn Ile
                                505
Glu Glu Gln Arg Arg Asn Arg Leu Ala Arg Glu Leu Pro Ser Ala Val
                           520
Ser Arg Asp Lys Ser Ser Lys Val Pro Ser Ala Leu Ala Pro Ala Ser
                       535
Gln Glu Pro Ser Pro Ala Ala Ser Ala Glu Ala Asp Gly Lys Leu Ile
                   550
                                       555
Gln Asp Ser Arg Arg Glu Thr Lys Asn Val Ala Ser Gly Gly Gly
               565
                                   570
Val Gly Asp Gly Val Gln Glu Pro Thr Thr Gly Asn Trp Arg Gly Met
                                585
Leu Lys Thr Ser Lys Ala Glu Glu Leu Leu Ala Glu Glu Lys Ser Lys
                            600
Pro Ile Pro Ile Met Pro Ala Ser Pro Gln Lys Gly His Ala Val Asn
                       615
Leu Leu Asp Val Pro Val Pro Val Ala Arg Lys Leu Ser Ala Arg Glu
                    630
                                       635
Gln Arg Asp Cys Glu Val Ile Glu Arg Leu Ile Lys Ser Tyr Phe Leu
                645
                                   650
Ile Val Arg Lys Asn Ile Gln Asp Ser Val Pro Lys Ala Val Met His
           660
                               665
Phe Leu Val Asn His Val Lys Asp Thr Leu Gln Ser Glu Leu Val Gly
                            680
                                                685
Gln Leu Tyr Lys Ser Ser Leu Leu Asp Asp Leu Leu Thr Glu Ser Glu
                        695
Asp Met Ala Gln Arg Arg Lys Glu Ala Ala Asp Met Leu Lys Ala Leu
                   710
                                       715
Gln Gly Ala Ser Gln Ile Ile Ala Glu Ile Arg Glu Thr His Leu Trp
                725
                                   730
      <210> 88
      <211> 37
      <212> PRT
      <213> Homo Sapiens
      <400> 88
Met Gly Asp His Ala Trp Ser Phe Leu Lys Asp Phe Leu Ala Gly Gly
                                    10
Val Ala Ala Ala Val Ser Lys Thr Ala Val Ala Pro Ile Glu Arg Val
           20
Lys Leu Leu Gln
        35
      <210> 89
      <211> 1381
      <212> DNA
```

<400> 89

<213> Homo Sapiens

cogoagocot agageogoc aagggatgg gatggogtae ttggettgga gaetggogog gegttegtgt cogagttot tgcaggtone tantitecog gtagttoane tgcnoatgaa tanaacagoa atgagagoon otonoaaaga otttgaaaat toactgaate nagtgaaaec etngaaaaag gatecangaa acgaaatgaa notnaaacte tnoggotat atnancange enetgaanga ettgintoat gecenaacca ngtgintitg acttgatona caaggggoca

```
atgggacaca tggaatgccc ttggcancct gcccnaagaa ctgccaggca naactatgtg
                                                                      360
gatttggtgt ccantttgan tccntccttg gaatcctcna atcnngtgga ncctggaaca
nacaggaaat ccactgggtt tgaaactctg gtggtgacct ccgaagatgg catcacaaag
                                                                      480
atcatqttca accggcccaa aaagaaaaat gccataaaca ctgagatgta tcatgaaatt
                                                                      540
atgogtgcac ttaaagctgc cagcaaggat gactcaatca tcactgtttt aacaggaaat
                                                                      600
ggtgactatt acagtagtgg gaatgatctg actaacttca ctgatattcc ccctqqtqga
                                                                      660
gtagaggaga aagctaaaaa taatgccqtt ttactgaggg aatttgtggg ctgttttata
                                                                      720
gattttccta agectctgat tgcagtggtc aatggtccag ctgtgggcat ctccgtcacc
                                                                      780
ctccttgggc tattcgatgc cgtgtatgca tctgacaggg caacatttca tacaccattt
                                                                      840
agtcacctag gccaaagtcc ggaaggatgc tcctcttaca cttttccgaa gataatgagc
                                                                      900
ccagccaagg caacagagat gcttattttt qqaaaqaaqt taacaqcqqq aqaqqcatgt
                                                                      960
gctcaaggac ttgttactga agttttccct gatagcactt ttcagaaaga agtctqqacc
                                                                     1020
aggetgaagg catttgcaaa getteeccca aatgeettga gaatttcaaa agaggtaate
                                                                     1080
aggaaaagag agagagaaaa actacacgct gttaatgctg aagaatgcaa tgtccttcag
                                                                     1140
ggaagatggc tatcagatga atgcacaaat gctqtqqtqa acttcttatc cagaaaatca
                                                                     1200
aaactgtgat gaccactaca gcagagtaaa gcatgtccaa ggaaggatgt gctgttacct
                                                                     1260
ctgatttcca gtactggaac taaataagct tcattgtgcc ttttgtagtg ctagaatatc
aattacaatg atgatatttc actacagctc tgatgaataa aaagttttgt aaaacaagaa
                                                                     1380
                                                                     1381
```

<210> 90 <211> 298 <212> PRT

<213> Homo Sapiens

<400> 90 Thr Cys Met Pro Pro Val Phe Asp Leu Ile Lys Gly Pro Met Gly His 1 10 Met Glu Cys Pro Trp Pro Ala Arg Thr Ala Arg Asn Tyr Val Asp Leu 20 25 Val Ser Leu Pro Ser Leu Glu Ser Ser Asn Val Pro Gly Thr Arg Lys 40 Ser Thr Gly Phe Glu Thr Leu Val Val Thr Ser Glu Asp Gly Ile Thr Lys Ile Met Phe Asn Arg Pro Lys Lys Asn Ala Ile Asn Thr Glu 70 75 Met Tyr His Glu Ile Met Arg Ala Leu Lys Ala Ala Ser Lys Asp Asp 90 Ser Ile Ile Thr Val Leu Thr Gly Asn Gly Asp Tyr Tyr Ser Ser Gly 110 Asn Asp Leu Thr Asn Phe Thr Asp Ile Pro Pro Gly Gly Val Glu Glu 120 Lys Ala Lys Asn Asn Ala Val Leu Leu Arg Glu Phe Val Gly Cys Phe 135 Ile Asp Phe Pro Lys Pro Leu Ile Ala Val Val Asn Gly Pro Ala Val 150 155 Gly Ile Ser Val Thr Leu Leu Gly Leu Phe Asp Ala Val Tyr Ala Ser 165 170 Asp Arg Ala Thr Phe His Thr Pro Phe Ser His Leu Gly Gln Ser Pro 180 185 Glu Gly Cys Ser Ser Tyr Thr Phe Pro Lys Ile Met Ser Pro Ala Lys 200 Ala Thr Glu Met Leu Ile Phe Gly Lys Lys Leu Thr Ala Gly Glu Ala 215 220 Cys Ala Gln Leu Val Thr Glu Val Phe Pro Asp Ser Thr Phe Gln Lys

<21.0> 91

<211> 1514 <212> DNA

<213> Homo Sapiens

<400> 91

geogegeget gtgteteege tgegteegee gaggeeeeeg agtgteaggg acaaaageet cogcetgete cogcagoogg ggetcatetg cogcegooge egogetgagg agagttegec 120 geogtegeeg eccgtgagga tetgagagee atgteggeea geageetett ggageagaga 180 ccaaaaaggtc aaggaaacaa agtacaaaat ggatctgtac atcaaaagga tggattaaac 240 gatgatgatt ttgaacctta cttgagtcca caggcaaggc ccaataatgc atatactgcc 300 atgtcagatt cotacttacc cagttactac agtccctcca ttggcttctc ctattctttg ggtgaagetg ettggtetae ggggggtgae acagecatge cetaettaae ttettatgga 420 cagctgagca acggagagcc ccacttccta ccagatgcaa tgtttgggca accaggagcc 480 ctaggtagca ctccatttct tggtcagcat ggttttaatt tctttcccag tgggattgac 540 ttctcagcat ggggaaataa cagttctcag ggacagtcta ctcagaqctc tqqatataqt 600 agcaattatg cttatgcacc tagctcctta ggtggagcca tgattgatgg acagtcagct 660 tttgccaatg agaccetcaa taaggeteet ggcatgaata etatagacca agggatggca 720 gcactgaagt tgggtagcac agaagttgca agcaatgttc caaaagttgt aggttctgct 780 gttggtagcg ggtccattac tagtaacatc gtggcttcca atagtttgcc tccagccacc 840 attgeteete caaaaccage atettggget gatattgeta geaageetge aaaacageaa 900 cetaaactga agaccaagaa tggcattgca gggtcaagtc ttccgccacc cccqataaaq 960 cataacatgg atattggaac ttgggataac aagggtcccg ttgcaaaagc cccctcacag getttggtte agaatatagg teageeaace eaggggtete eteageetgt aggteageag 1080 getaacaata geccaccagt ggeteaggea teagtaggge aacagacaca gecattgeet 1140 ccacctccac cacagottge ccagotttea gtccagcaac aggcagetea gccaaccege 1200 tgggtagcac ctcggaaccg tggcagtggg ttcggtcata atggggtgga tggtaatgga gtaggacagt ctcaggctgg ttctggatct actccttcag aaccccaccc agtgttggag 1320 aagetteggt ccattaataa ctataacccc aaagattttg actgggaaat ctgaaacatg 1380 ggcgggtttt catcattaaa gaactactct gangacgata ttcaccgttc catttaagtt 1440 ataatatttg gtggancaca anagcaatgg taacaaqaqa atgggatgcc ngcttatcgt 1500 ttccatgaac gggg 1514

<210> 92

<211> 407

<212> PRT

<213> Homo Sapiens

<400> 92

Met Ser Ala Ser Ser Leu Leu Glu Gln Arg Pro Lys Gly Gln Gly Asn

1 5 10 15

Lys Val Gln Asn Gly Ser Val His Gln Lys Asp Gly Leu Asn Asp Asp
20 25 30

Asp Phe Glu Pro Tyr Leu Ser Pro Gln Ala Arg Pro Asn Asn Ala Tyr

WO 99/04265 PCT/US98/14679

```
Thr Ala Met Ser Asp Ser Tyr Leu Pro Ser Tyr Tyr Ser Pro Ser Ile
Gly Phe Ser Tyr Ser Leu Gly Glu Ala Ala Trp Ser Thr Gly Gly Asp
                                        75
Thr Ala Met Pro Tyr Leu Thr Ser Tyr Gly Gln Leu Ser Asn Gly Glu
                                    90
Pro His Phe Leu Pro Asp Ala Met Phe Gly Gln Pro Gly Ala Leu Gly
           100
                               105
Ser Thr Pro Phe Leu Gly Gln His Gly Phe Asn Phe Phe Pro Ser Gly
                           120
Ile Asp Phe Ser Ala Trp Gly Asn Asn Ser Ser Gln Gly Gln Ser Thr
                       135
Gln Ser Ser Gly Tyr Ser Ser Asn Tyr Ala Tyr Ala Pro Ser Ser Leu
                    150
                                        155
Gly Gly Ala Met Ile Asp Gly Gln Ser Ala Phe Ala Asn Glu Thr Leu
                165
                                    170
Asn Lys Ala Pro Gly Met Asn Thr Ile Asp Gln Gly Met Ala Ala Leu
                               185
Lys Leu Gly Ser Thr Glu Val Ala Ser Asn Val Pro Lys Val Val Gly
                            200
Ser Ala Val Gly Ser Gly Ser Ile Thr Ser Asn Ile Val Ala Ser Asn
                        215
                                           220
Ser Leu Pro Pro Ala Thr Ile Ala Pro Pro Lys Pro Ala Ser Trp Ala
                   230
                                       235
Asp Ile Ala Ser Lys Pro Ala Lys Gln Gln Pro Lys Leu Lys Thr Lys
                                    250
                245
Asn Gly Ile Ala Gly Ser Ser Leu Pro Pro Pro Pro Ile Lys His Asn
                                265
Met Asp Ile Gly Thr Trp Asp Asn Lys Gly Pro Val Ala Lys Ala Pro
                            280
Ser Gln Ala Leu Val Gln Asn Ile Gly Gln Pro Thr Gln Gly Ser Pro
                        295
Gln Pro Val Gly Gln Gln Ala Asn Asn Ser Pro Pro Val Ala Gln Ala
                    310
                                        315
Ser Val Gly Gln Gln Thr Gln Pro Leu Pro Pro Pro Pro Pro Gln Pro
                                    330
Ala Gln Leu Ser Val Gln Gln Gln Ala Ala Gln Pro Thr Arg Trp Val
           340
                               345
Ala Pro Arg Asn Arg Gly Ser Gly Phe Gly His Asn Gly Val Asp Gly
                            360
Asn Gly Val Gly Gln Ser Gln Ala Gly Ser Gly Ser Thr Pro Ser Glu
                        375
Pro His Pro Val Leu Glu Lys Leu Arg Ser Ile Asn Asn Tyr Asn Pro
                    390
                                       395
Lys Asp Phe Asp Trp Glu Ile
                405
```

<210> 93

<211> 2236

<212> DNA

<213> Homo Sapiens

<400> 93

cotggcccgg tcgcggtcgc ggctctttcc agctcctggc agccgggcac ccgaaggaac gggtcgtgca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggcccgagaa

```
ttccqqcata aqqtqqattt tctqattqaa aatqatqcaq aqaaqqacta tctctatgat
                                                                    180
gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaaqctq
                                                                    240
gtcatcaatg aacccagccg totgectotg tttgatgcca ttcggccqct qatcccactq
                                                                   300
aagcaccagg tggaatatga tcaqctgacc ccccqqcqct ccaqqaaqct qaaqqaqqtq
                                                                   360
egtetggace gtetgcacee egaaggeete ggeetgagtg tgegtggtgg cetggagttt
                                                                    420
ggctgtgggc tcttcatctc ccacctcatc aaaggcggtc aggcagacag cgtcgggctc
                                                                    480
caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg tacccatqaq
                                                                   540
gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagtgag acacatcggc
                                                                   600
ctgatccccg tgaaaagctc tcctgatgag cccctcactt ggcagtatgt ggatcagttt
                                                                   660
gtgtcggaat ctgggggcgt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag
                                                                   720
gagaagaagg tottcatcag cotggtaggo toccgaggoo ttggctqcaq catttccaqc
                                                                   780
ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct
                                                                   840
gaggtgggat tggagatagg ggaccagatt gtcgaagtca atggcgtcga cttctctaac
                                                                   900
ctggatcaca aggaggctgt aaatgtgctg aaaaatagec geagectgae cateteeatt
                                                                   960
gtagctgcag ctggccggga gctgttcatg acagaccggg agcggctggc agaggcgcgg
                                                                   1020
cagcgtgagc tgcagcggca ggaqcttctc atqcaqaaqc qqctqqcqat qqaqtccaac
                                                                  1080
aagatcctcc aggagcagca ggagatggag cggcaaagga gaaaagaaat tgcccagaag
                                                                   1140
gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag
                                                                   1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttqcctaaa
                                                                   1260
accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg
                                                                  1320
gaacctgagc tcgagcccgc agatqacctq qatqqaqqca cqqaqqaqca qqqaqaqcag
                                                                  1380
gatttccgga aatatgagga aggctttgac ccctactcta tgttcacccc agagcagate
                                                                  1440
atggggaagg atgtccggct cctacgcatc aagaaggagg gatccttaga cctqqccctq
                                                                  1500
gaaggoggtg tggactcccc cattgggaag gtggtcgttt ctgctgtgta tgaqcqqqqa
                                                                  1560
gctgctgagc ggcatggtgg cattgtgaaa ggggacgaga tcatggcaat caacggcaag
attgtgacag actacaccct ggctgaggct gacgctgccc tgcagaaggc ctggaatcag
                                                                  1680
ggcggggact ggatcgacct tgtggttgcc gtctgccccc caaaggagta tgacgatgag
                                                                   1740
ctgaccttct tgctgaagtc caaaagggga aaccaaattc acgcgttagg aaacagtgag
                                                                  1800
ctccggcccc acctcgtgaa cacaaagcct cggaccagcc ttgagagagg ccacatgaca
                                                                  1860
cacaccagat ggcatccttg ggacctgaat ctatcaccca ggaatctcaa actccctttg
                                                                  1920
gccctgaacc agggccagat aaggaacagc tcgggccact tttttgaaqq ccaatqtqqa
                                                                   1980
ggaaagggag cagccagccg tttgggagaa gatctcaagg atccagactc tcattccttt
                                                                   2040
cctctggccc agtgaatttg gtctctccca gctttggggg actccttcct tgaaccctaa
                                                                   2100
taagacccca ctggagtete teteteteca teceteteet etgecetetg etetaattge
                                                                   2160
2220
ttccaqctta aaaaaa
```

<210> 94

<211> 652

<212> PRT

<213> Homo Sapiens

<400> 94

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu 1.0 Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu 40 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu Gly Leu Gly Leu Ser Val Arq Gly Gly Leu Glu Phe Gly Cys Gly Leu 105 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu 120 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser 135 140 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val 150 155 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro 170 165 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser 185 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys 200 Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys 215 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His 230 235 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp 245 250 Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys 260 265 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile 280 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu 295 300 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln 310 315 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu 325 330 Met Glu Arg Gln Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu 345 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu 360 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu 375 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg 390 395 Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp 410 Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Asp Phe Arq Lys 425 Tyr Glu Glu Gly Phe Asp Pro Tyr Ser Met Phe Thr Pro Glu Gln Ile 440 Met Gly Lys Asp Val Arg Leu Leu Arg Ile Lys Lys Glu Gly Ser Leu 455 Asp Leu Ala Leu Glu Gly Gly Val Asp Ser Pro Ile Gly Lys Val Val 470 475 Val Ser Ala Val Tyr Glu Arg Gly Ala Ala Glu Arg His Gly Gly Ile 490 Val Lys Gly Asp Glu Ile Met Ala Ile Asn Gly Lys Ile Val Thr Asp 505 Tyr Thr Leu Ala Glu Ala Asp Ala Ala Leu Gln Lys Ala Trp Asn Gln 520 Gly Gly Asp Trp Ile Asp Leu Val Val Ala Val Cys Pro Pro Lys Glu

120

180

360

420

540

600

780

831

535 540 Tyr Asp Asp Glu Leu Thr Phe Leu Leu Lys Ser Lys Arg Gly Asn Gln 550 555 Ile His Ala Leu Gly Asn Ser Glu Leu Arg Pro His Leu Val Asn Thr 570 Lys Pro Arg Thr Ser Leu Glu Arg Gly His Met Thr His Thr Arg Trp 585 His Pro Trp Asp Leu Asn Leu Ser Pro Arg Asn Leu Lys Leu Pro Leu 600 Ala Leu Asn Gln Gly Gln Ile Arg Asn Ser Ser Gly His Phe Phe Glu 615 Gly Gln Cys Gly Gly Lys Gly Ala Ala Ser Arg Leu Gly Glu Asp Leu 630 Lys Asp Pro Asp Ser His Ser Phe Pro Leu Ala Gln 645

<210> 95 <211> 831 <212> DNA

<213> Homo Sapiens

<400> 95

<210> 96 <211> 184 <212> PRT <213> Homo Sapiens

<400> 96

Arg Lys Asn Cys Arg Lys His Leu Asp Met Lys Tyr Ile Lys His Leu

1008

Glu Asn Asn His Gly Phe His Glu Lys Thr Ala Ala Leu Lys Leu Glu 100 105 Ala Glu Gly Glu Ala Met Glu Asp Ala Ala Ala Pro Gly Asn Asp Arg 120 Gly Gly Thr Gln Glu Pro Ala Pro Val Pro Ala Glu Pro Phe Asp Asn 135 Thr Thr Tyr Lys Asn Leu Gln His His Asp Tyr Ser Thr Tyr Thr Phe 150 155 Leu Asp Leu Asn Leu Glu Leu Ser Lys Phe Arg Met Pro Gln Pro Ser 165 170 175 Ser Gly Arg Glu Ser Pro Arg His 180 <210> 97 <211> 1008 <212> DNA <213> Homo Sapiens <400> 97 gcaaggtete caagteecag etcaaggtee ttteecataa cetgtgeacg gtgetgaagg ttcctcatga cccagttgcc cttgaagagc acttcaggga tgatgatgag ggtccagtgt 120 ccaaccaggg ctacatgcct tatttaaaca ggttcatttt ggaaaaggtc caagacaact 180 ttgacaagat tgaattcaat aggatgtgtt ggaccetetg tgtcaaaaaa aacctcacaa 240 agaatcccct gctcattaca gaagaanatg catttaaaat atgggttatt ttcaactttt 300 tatctgagga caagtatcca ttaattattg tgtcagaana gattgaatac ctgcttaaga 360 agettacaga agetatggga ggaggttgge ageaagaaca atttgaacat tataaaatca 420 actttgatga cagtaaaaat ggcctttctg catgggaact tattgagctt attggaaatg gacagtttag caaaggcatg gaccggcaga ctgtgtctat ggcaattaat gaagtcttta 540 atgaacttat attagatgtg ttaaagcagg gttacatgat gaaaaagggc cacagacgga 600 aaaactggac tgaacgatgg tttgtactaa aacccaacat aatttcttac tatgtgagtg 660 aggatetgaa ggataagaaa ggagacatte tettggatga aaattgetgt gtagagteet 720 tgcctgacaa agatggaaag aaatgccttt ttctcgtaaa atgttttgat aagacttttg 780 aaatcagtgc ttcagataag aanaanaaac aggagtggat tcaagccatt cattctacta 840 ttcatctgtt gaagctgngc agccctccac canacaaaga agccnnccag cttctnaaan 900 aactccggna gaatcatctg gctgaacaag angaactgga gcgacaaatg aangaactcc

<210> 98

<211> 312 <212> PRT

<213> Homo Sapiens

<400> 98

Lys Val Ser Lys Ser Gln Leu Lys Val Leu Ser His Asn Leu Cys Thr 10 Val Leu Lys Val Pro His Asp Pro Val Ala Leu Glu Glu His Phe Arg Asp Asp Asp Glu Gly Pro Val Ser Asn Gln Gly Tyr Met Pro Tyr Leu 40 Asn Arg Phe Ile Leu Glu Lys Val Gln Asp Asn Phe Asp Lys Ile Glu Phe Asn Arg Met Cys Trp Thr Leu Cys Val Lys Lys Asn Leu Thr Lys 70

aagcccgcca atgaaagcaa ncagcaagag ctggaaggcc ttncqqaa

Asn Pro Leu Leu Ile Thr Glu Glu Ala Phe Lys Ile Trp Val Ile Phe 9.0

```
Asn Phe Leu Ser Glu Asp Lys Tyr Pro Leu Ile Ile Val Ser Glu Ile
            100
                                105
Glu Tyr Leu Leu Lys Lys Leu Thr Glu Ala Met Gly Gly Gly Trp Gln
                            120
Gln Glu Gln Phe Glu His Tyr Lys Ile Asn Phe Asp Asp Ser Lys Asn
                        135
Gly Leu Ser Ala Trp Glu Leu Ile Glu Leu Ile Gly Asn Gly Gln Phe
                    150
                                        155
Ser Lys Gly Met Asp Arg Gln Thr Val Ser Met Ala Ile Asn Glu Val
                165
                                    170
Phe Asn Glu Leu Ile Leu Asp Val Leu Lys Gln Gly Tyr Met Met Lys
                                185
Lys Gly His Arg Arg Lys Asn Trp Thr Glu Arg Trp Phe Val Leu Lys
                            200
Pro Asn Ile Ile Ser Tyr Tyr Val Ser Glu Asp Leu Lys Asp Lys Lys
                        215
Gly Asp Ile Leu Leu Asp Glu Asn Cys Cys Val Glu Ser Leu Pro Asp
                    230
Lys Asp Gly Lys Lys Cys Leu Phe Leu Val Lys Cys Phe Asp Lys Thr
                                    250
Phe Glu Ile Ser Ala Ser Asp Lys Lys Gln Glu Trp Ile Gln Ala Ile
                                265
                                                     270
His Ser Thr Ile His Leu Leu Lys Leu Ser Pro Pro Pro Lys Glu Ala
                            280
                                                285
Gln Leu Leu Lys Leu Arg Asn His Leu Ala Glu Gln Glu Leu Glu Arg
                        295
Gln Met Glu Leu Gln Ala Arg Gln
305
                    310
```

<210> 99 <211> 1009 <212> DNA

<400> 99

<213> Homo Sapiens

```
ggctaatgta acatactcta ccacttggtc tgaagcccag cagtatctga tggataatcc
aacttttgca gaagatgagg agttacaaaa tatggacaaa gaagatgcat taatttgctt
                                                                      120
tgaagaacac attogggott tagaaaagga ggaagaagaa gaaaaacaga agagttqct
                                                                      180
gagagaaagg agacgacagc gaaaaaatag ggaatctttc cagatatttt tagatgaatt
                                                                      240
acatgaacat ggacaactgc attetatgtc atettggatg gaattgtatc caactattag
                                                                      300
ttetgatatt agatteacta atatgettgg teageetgga teaactgeac ttgatettt
caagttttat gttgaggatc ttaaagcacg ttatcatgac gagaagaaga taataaaaga
                                                                      420
cattctaaag gataaaggat ttgtagttga agtaaacact acttttgaag attttgtggc
                                                                      480
gataatcagt tcaactaaaa gatcaactac attagatgct ggaaatatca aattggcttt
                                                                      540
caatagttta ctagaaaagg cagaagcccg tgaacgtgaa agagaaaaag aagaggctcg
                                                                      600
gaagatgaaa cgaaaagaat ctgcatttaa gagtatgtta aaacaagctg ctcctccgat
                                                                      660
agaattggat gctgtctggg aagatatccg tgagagattt gtaaaagagc cagcatttga
                                                                      720
ggacataact ctagaatctg aaagaaaacg aatatttaaa gattttatgc atgtgcttga
                                                                      780
gcatgaatgt cagcatcatc attcaaagaa caagaaacat tctaagaaat ctaaaaaaca
                                                                      840
tcataggaaa cgttcccgct ctcgatcggg gtcagattca ngatgatgat gatagccatt
                                                                      900
caaagaaaaa aagacagcga tgagaagtct cggtctgntt canaacattc ttccantnqc
                                                                      960
agagtctgag agaagtntaa aaagtcaaaa nagcatagan aggaaagtt
                                                                     1009
```

<210> 100 <211> 292 <212> PRT

<213> Homo Sapiens <400> 100 Ala Asn Val Thr Tyr Ser Thr Thr Trp Ser Glu Ala Gln Gln Tyr Leu 1.0 Met Asp Asn Pro Thr Phe Ala Glu Asp Glu Glu Leu Gln Asn Met Asp Lys Glu Asp Ala Leu Ile Cys Phe Glu Glu His Ile Arg Ala Leu Glu 40 Lys Glu Glu Glu Glu Lys Gln Lys Ser Leu Leu Arg Glu Arg Arg 55 60 Arg Gln Arg Lys Asn Arg Glu Ser Phe Gln Ile Phe Leu Asp Glu Leu 70 75 His Glu His Gly Gln Leu His Ser Met Ser Ser Trp Met Glu Leu Tyr 90 Pro Thr Ile Ser Ser Asp Ile Arg Phe Thr Asn Met Leu Gly Gln Pro 105 Gly Ser Thr Ala Leu Asp Leu Phe Lys Phe Tyr Val Glu Asp Leu Lys 120 Ala Arg Tyr His Asp Glu Lys Lys Ile Ile Lys Asp Ile Leu Lys Asp 135 Lys Gly Phe Val Val Glu Val Asn Thr Thr Phe Glu Asp Phe Val Ala 150 155 Ile Ile Ser Ser Thr Lys Arg Ser Thr Thr Leu Asp Ala Gly Asn Ile 165 170 Lys Leu Ala Phe Asn Ser Leu Leu Glu Lys Ala Glu Ala Arg Glu Arg 180 185 Glu Arg Glu Lys Glu Glu Ala Arg Lys Met Lys Arg Lys Glu Ser Ala 195 200 Phe Lys Ser Met Leu Lys Gln Ala Ala Pro Pro Ile Glu Leu Asp Ala 215 220 Val Trp Glu Asp Ile Arg Glu Arg Phe Val Lys Glu Pro Ala Phe Glu 230 235 Asp Ile Thr Leu Glu Ser Glu Arg Lys Arg Ile Phe Lys Asp Phe Met 245 250 His Val Leu Glu His Glu Cys Gln His His His Ser Lys Asn Lys Lys 265 270 His Ser Lys Lys Ser Lys Lys His His Arg Lys Arg Ser Arg Ser Arg 275 280 Ser Gly Ser Asp 290 <210> 101 <211> 983 <212> DNA

<213> Homo Sapiens

<400> 101

aggtgacaat agatatagaa gtacgttgat gtgcgaagat gtattttgtt ttagccagcg 60 aggaaaaaag aatcagtttg attatacatt taccaaacat taagaattta atatggtaac 120 ttttatttca gtattaaaat agcaatttta tttattactt ttttatatat agaatttgac 180 accaaatttt ggaacttaaa aagaagattc ttaaaactta caatccagat tacgatgagg 240 acctggtgca ggaagettca tetgaagatg teetgggegt teatatggtg gacaaagaca 300 cagagagaga cattgagatg aaacggcaac tacggcgact acgggagctc cacctataca 360

gcacatggaa	gaagtaccaa	gaggcgatga	agacatcctt	gggagttcca	caacgtgagc	420
gtgacgaagg	ctccttgggc	aagccattgt	gtccacccga	gatactctcg	gagacgttgc	480
caggctctgt	gaagaaaagg	gtatgctttc	catcagaaga	tcatctagag	gagtttatag	540
cagaacatct	ccctgaagca	tccaatcaga	gtctcctcac	tgttgcccat	gcagacgcag	600
gcacccaaac	caacggtgac	ctggaagacc	tggaggagca	tgggccaggg	cagacagtct	660
ctgaggaagc	cacagaagtt	cacatgatgg	agggggaccc	agacacactg	gccgaacttc	720
tgatcaggga	tgtacttcag	gagctgtcca	gttacaacgg	cgaggaggag	gacccanagg	780
aggtgaagac	atccttggga	gttccacaac	gtggtgacct	ggaagacctg	gaggagcatg	840
tgncagggca	gnnnttctct	gaggaagcca	caggggttca	catgatgcag	gtggacccag	900
ccacgctggc	aaagagtgac	ctggaagacc	tggaggagca	tgtgccagag	cagacagtet	960
	cacaggggtt					983

<210> 102 <211> 230 <212> PRT <213> Homo Sapiens

<400> 102

Leu Pro Gly Ser Val Lys Lys Arg Val Cys Phe Pro Ser Glu Asp His 65 70 75 80
Leu Glu Glu Phe Ile Ala Glu His Leu Pro Glu Ala Ser Asn Gln Ser 85 90 90 95
Leu Leu Thr Val Ala His Ala Asp Ala Gly Thr Gln Thr Asn Gly Asp 100

Leu Glu Asp Leu Glu Glu His Gly Pro Gly Gln Thr Val Ser Glu Glu Li5 120 125

Ala Thr Glu Val His Met Met Glu Gly Asp Pro Asp Thr Leu Ala Glu 130 135 140

130 130 140
Leu Ile Arg Asp Val Leu Gln Glu Leu Ser Ser Tyr Asn Gly Glu
145 150 150 155 160
Glu Glu Asp Pro Glu Val Lys Thr Ser Leu Gly Val Pro Gln Yag Gly
165 170 170

Asp Leu Glu Asp Leu Glu Glu His Val Gly Gln Phe Ser Glu Glu Ala 180 185 190

Thr Gly Val His Met Met Gln Val Asp Pro Ala Thr Leu Ala Lys Ser
195 200 205

Asp Leu Glu Asp Leu Glu Glu His Val Pro Glu Gln Thr Val Ser Glu
210 215 220

Glu Ala Thr Gly Val His

225 230

<210> 103 <211> 843

<212> DNA

<213> Homo Sapiens

<400> 103

```
aatnoccgct gcaggtcgac actagtggat ccaaagaatt cggcacgagg caagttctqq
gagetggaca eggaceaega eetgeteate gaegeggaeg acetggegeg geacaatgae
                                                                      120
cacgcccttt ctaccaagat gatagacagg atcttctcag gagcagtcac acgaggcaga
                                                                      180
aaagtgcaga aggaagggaa gatcagctat gccgactttg tctggttttt gatctctgag
                                                                      240
gaagacaaaa aaacaccgac cagcatcgag tactggttcc gctgcatgga cctggacggg
                                                                      300
gacggcgccc tgtccatgtt cgagctcgag tacttctacg aggagcagtg ccgaaggctg
                                                                      360
gacagcatgg ccatcgaggc cctgcccttc caggactgcc tctgccagat gctggacctg
gtcaagccga ggactgaagg gaagatcacg ctgcaggacc tgaagcgctg caagctggcc
aacgtettet tegacacett etteaacate gagaagtnee tegaceacga geagaaagag
                                                                      540
cagatotoco tgotoaggga oggtgacago ggogggocog agototogga otgggagaag
                                                                      600
tneeggeega agagtnegae atcetggtgg eegangaaac egtggggana neeetgggga
                                                                      660
agacgggttc naaggcgaac tcaccccent ggancanaaa ctgantgcgc tgcgctcccc
                                                                      720
getgggecan aggeettett ccaagegeet eeegetgggg egeegtggaa etgttneaaa
                                                                      780
tteecetgeg gggacaagaa ettgaaaceg etgtgannee eecenenana acceneceeg
                                                                      840
ant
                                                                      843
```

<210> 104 <211> 197 <212> PRT

<213> Homo Sapiens

<400> 104

Arg Cys Arg Ser Thr Leu Val Asp Pro Lys Asn Ser Ala Arg Gly Lys 1 1.0 Phe Trp Glu Leu Asp Thr Asp His Asp Leu Leu Ile Asp Ala Asp Asp 20 2.5 Leu Ala Arg His Asn Asp His Ala Leu Ser Thr Lys Met Ile Asp Arg 40 Ile Phe Ser Gly Ala Val Thr Arg Gly Arg Lys Val Gln Lys Glu Gly 55 Lys Ile Ser Tyr Ala Asp Phe Val Trp Phe Leu Ile Ser Glu Glu Asp 70 Lys Lys Thr Pro Thr Ser Ile Glu Tyr Trp Phe Arg Cys Met Asp Leu 90 Asp Gly Asp Gly Ala Leu Ser Met Phe Glu Leu Glu Tyr Phe Tyr Glu 100 105 Glu Gln Cys Arg Arg Leu Asp Ser Met Ala Ile Glu Ala Leu Pro Phe Gln Asp Cys Leu Cys Gln Met Leu Asp Leu Val Lys Pro Arg Thr Glu 140 Gly Lys Ile Thr Leu Gln Asp Leu Lys Arg Cys Lys Leu Ala Asn Val 145 150 155 Phe Phe Asp Thr Phe Phe Asn Ile Glu Lys Leu Asp His Glu Gln Lys 165 170 Glu Gln Ile Ser Leu Leu Arg Asp Gly Asp Ser Gly Gly Pro Glu Leu

185

<210> 105 <211> 2264 <212> DNA <213> Homo Sapiens

180

<400> 105

Ser Asp Trp Glu Lys 195

```
ctagcacaag tacacaggcc ccagccgctt cccctactgg tgtagttcct ggtaccaaat
                                                                       60
atgcagtacc tgacacgtcc acttaccagt atgatgaatc ttcaggatat tactatgatc
                                                                      120
egacaacagg getetattat gaceecaact egeaatacta etataattee ttgacecage
                                                                      180
agtaccttta ctgggatggg gaaaaagaga cctacgtgcc agctgcagag tctagctccc
                                                                      240
accaqcagtc gggcctgcct cctgcaaaag aggggaaaga gaagaaggag aaacccaaga
                                                                      300
gcaaaacage ccagcagatt gccaaagaca tggaacgetg ggctaagagt ttgaataage
                                                                     360
agaaagaaaa ctttaaaaaat agctttcagc ctgtcaattc cttgagggaa gaagaaagga
                                                                     420
gagaatetge tgeageagae getggetttg etetettga gaagaaggga geettagetg
aaaggcagca geteateeca gaattggtge gaaatggaga tgaggagaat eeeetcaaaa
                                                                     540
ggggtctggt tgctgcttac agtggtgaca gtgacaatga ggaggagctg gtggagagac
                                                                     600
ttgagagtga ggaagagaag ctagctgact ggaagaagat ggcctgtctg ctctqccqqc
                                                                     660
gccaqttccc gaacaaagat gccctagtca ggcaccagca actctcagac cttcacaagc
                                                                     720
aaaacatgga catctaccga cgatccaggc tgagcgagca ggagctggaa gccttggagc
                                                                     780
taagggagag agagatgaaa taccgagacc gagctgcaga aagacgggag aagtacggca
                                                                     840
ttccagaacc tccagagccc aagcgcaaga agcagtttga tgccggcact gtgaattacq
                                                                     900
agcaacccac caaagatggc attgaccaca gtaacattgg caacaagatg ctgcaggcca
                                                                     960
tgggctggcg ggaaggetet ggettgggac gaaagtgtea aggeattacg geteccattg
                                                                    1020
aggeteaagt teggetaaag ggagetggee taggageeaa aggeagegea tatggtttgt
                                                                    1080
cgggcgccga ttcctacaaa gatgctgtcc ggaaagccat gtttgcccgg ttcactgaga
                                                                    1140
tggagtgaga gagagaga gagagagatg acaaggagca caagaagtgg tccatctccc
gaattegetg ttacegeetg tetetttaag ggeatgeett gtgetgttaa tagatettag
                                                                    1260
ggtgaaccac ttcattctgc agggttctcc ctcccacctt aaagaagttc cccttatgtg
                                                                    1320
ggttgcctgg tgaatggcct tccttcccgc cagagggctt gtgaacagac cggagaggac
agtggattgt ttatactcca gtgtacatag tgtaatgtag cgtgtttaca tgtgtagcct
atgttgtggt ccatcagece etcacattee taggggtttg agatgetgta ggtggtatgt
                                                                    1500
gacaccaaag ccacctctgt catttgttgt gatgtctttt cttggcaaaa gccttgtgta
                                                                    1560
tatttgtata ttacacattt gtacagaatt ttggaagatt ttcaatccaa gttgccaaat
                                                                    1620
ctgqctcctt tacaaaagaa ataccttgag aaaaaaaann aannaaaaaa aanncccnan
                                                                    1680
nnntttttaa aangggnegg gggeeaannn tttteennee ggggngggna nnaagtaaan
                                                                    1740
ngteecaaat neececaaaa nggageeenn ttaaaattaa angggeegen nttttaaaan
nttengaatn gggnaaacce tnggggtttn ccaaatttaa cecetttgaa aaaaaancce
etttencaaa anngggntaa tanccaaaaa gggeececan ecatttttge centtecaaa
aaaatttgnc caancennaa atgggnaaan ggggaateca attttttaaa gggnnaaaan
gggtttaaac nnacgggntt ccaaanttgn ttgggggaat ttttaaattc ccaannnccc
aagggggnca atttagnggn ccccnaatcc cccaaaaant ggttcnnggn tnaaancngc
ennnncenaa tttntanggg tttacttngn tttaaaaaaac cencccaaaa acteeceenn
                                                                    2160
gaaccnaaaa aanaaaagga ngccattttt ngnngnaaac ttttttaann nnccnnttaa
                                                                    2220
angggttaaa aaannnnnn tnnncccnaa tttttcaaan aang
                                                                    2264
```

<210> 106 <211> 381 <212> PRT

<213> Homo Sapiens

<400> 106

WO 99/04265 PCT/US98/14679

```
Gln Gln Ser Gly Leu Pro Pro Ala Lys Glu Gly Lys Glu Lys Lys Glu
                                    90
Lys Pro Lys Ser Lys Thr Ala Gln Gln Ile Ala Lys Asp Met Glu Arg
            100
                                105
Trp Ala Lys Ser Leu Asn Lys Gln Lys Glu Asn Phe Lys Asn Ser Phe
        115
                           120
Gln Pro Val Asn Ser Leu Arg Glu Glu Glu Arg Arg Glu Ser Ala Ala
                        135
                                            140
Ala Asp Ala Gly Phe Ala Leu Phe Glu Lys Lys Gly Ala Leu Ala Glu
                   150
                                        155
Arg Gln Gln Leu Ile Pro Glu Leu Val Arg Asn Gly Asp Glu Glu Asn
                165
                                    170
Pro Leu Lys Arg Gly Leu Val Ala Ala Tyr Ser Gly Asp Ser Asp Asn
                                185
Glu Glu Glu Leu Val Glu Arg Leu Glu Ser Glu Glu Glu Lys Leu Ala
                            200
Asp Trp Lys Lys Met Ala Cys Leu Leu Cys Arg Arg Gln Phe Pro Asn
                        215
Lys Asp Ala Leu Val Arg His Gln Gln Leu Ser Asp Leu His Lys Gln
                    230
                                       235
Asn Met Asp Ile Tyr Arg Arg Ser Arg Leu Ser Glu Gln Glu Leu Glu
                245
                                    250
Ala Leu Glu Leu Arg Glu Arg Glu Met Lys Tyr Arg Asp Arg Ala Ala
                                265
                                                    270
Glu Arg Arg Glu Lys Tyr Gly Ile Pro Glu Pro Pro Glu Pro Lys Arg
        275
                            280
Lys Lys Gln Phe Asp Ala Gly Thr Val Asn Tyr Glu Gln Pro Thr Lys
                        295
                                            300
Asp Gly Ile Asp His Ser Asn Ile Gly Asn Lys Met Leu Gln Ala Met
                    310
                                        315
Gly Trp Arg Glu Gly Ser Gly Leu Gly Arg Lys Cys Gln Gly Ile Thr
                325
                                    330
Ala Pro Ile Glu Ala Gln Val Arg Leu Lys Gly Ala Gly Leu Gly Ala
                                345
Lys Gly Ser Ala Tyr Gly Leu Ser Gly Ala Asp Ser Tyr Lys Asp Ala
        355
                            360
Val Arg Lys Ala Met Phe Ala Arg Phe Thr Glu Met Glu
    370
                        375
     <210> 107
```

<211> 1367

(211> 136

<212> DNA

<213> Homo Sapiens

<400> 107

```
gcgacacagg cctcgagget gtetetgaca agtgttcaca ggaggtgggg acgcctctgc
                                                                       60
gcgaggaacg aggagctacg ggcctgggcc cggttattgc catgggcagc ggctgccgca
togaatgcat attottcage gagttccace ceaegetggg acceaagate acctateagg
tecetgaaga etteatetee egagagetgt ttgacacagt ecaagtgtae ateateacea
                                                                      240
agccagaget gcagaacaag ettateaetg teacagetat ggaaaagaag etgategget
                                                                      300
gteetgtgtg categaacae aagaagtaca geegeaatge teteetette aacetggget
                                                                      360
tegtgtgtga tgcccaggcc aagacctgcg ccctcgagcc cattgttaaa aagctggctg
                                                                      420
getatetgae cacactagag etagagagea gettegtgte catggaggag agcaagcaga
                                                                      480
agttggtgcc catcatgacc atcttgctgg aggagctaaa tgcctcaggc cggtgcactc
                                                                      540
tgcccattga tgagtccaac accatccact tgaaggtgat tgagcagcgg ccagaccctc
                                                                      600
```

WO 99/04265 PCT/US98/14679

eggtggccca ggagtatgat gtacetgtet ttaccaaaga caaggaggat ttettcaact cacagtggga cctcactaca caacaaatcc tgccctacat tgatgggttc cgccacatcc 720 agaagatttc agcagaggca gatgtggagc tcaacctggt gegcattgct atccagaacc 780 tgetgtacta eggegttgtg acaetggtgt ceatecteca gtactecaat gtatactgee 840 caacgcccaa ggtccaggac ctggtagatg acaagtccct gcaagaggca tqtctatcct 900 acgtgaccaa gcaagggcac aagagggcca gtctccggga tgtgttccag ctatactgca geetgageee tggeactace gtgegagaee teattggeeg ceaceeeeag eagetgeage atgttgatga acggaagetg atccagttcg ggettatgaa gaacetcate aggegactae 1080 agaagtatee tgtgegggtg actegggaag ageagageea eeetgeeegg etttataeag 1140 getgecacag etatgacgag atetgetgea agacaggeat gagetaceat gagetggatg 1200 ageggettga aaatgacccc aacatcatca tetgetggaa gtgaggetgg tagtgactgg 1260 atggacacat tgctgtgggt agtccctcct actaggaggc ttgtcatact gtctagaggt 1320 tgactcttag ttctgtaaat aaagacatcc atttcaaaca gccaaaa 1367

<210> 108 <211> 413 <212> PRT

<213> Homo Sapiens

<400> 108

Asp Thr Gly Leu Glu Ala Val Ser Asp Lys Cys Ser Gln Glu Val Gly 10 Thr Pro Leu Arg Glu Glu Arg Gly Ala Thr Gly Leu Gly Pro Val Ile Ala Met Gly Ser Gly Cys Arg Ile Glu Cys Ile Phe Phe Ser Glu Phe 40 His Pro Thr Leu Gly Pro Lys Ile Thr Tyr Gln Val Pro Glu Asp Phe Ile Ser Arg Glu Leu Phe Asp Thr Val Gln Val Tyr Ile Ile Thr Lys 70 75 Pro Glu Leu Gln Asn Lys Leu Ile Thr Val Thr Ala Met Glu Lys Lys Leu Ile Gly Cys Pro Val Cys Ile Glu His Lys Lys Tyr Ser Arg Asn 3.00 105 Ala Leu Leu Phe Asn Leu Gly Phe Val Cys Asp Ala Gln Ala Lys Thr 120 Cys Ala Leu Glu Pro Ile Val Lys Lys Leu Ala Gly Tyr Leu Thr Thr 135 140 Leu Glu Leu Glu Ser Ser Phe Val Ser Met Glu Glu Ser Lys Gln Lys 150 155 Leu Val Pro Ile Met Thr Ile Leu Leu Glu Glu Leu Asn Ala Ser Gly 165 170 Arg Cys Thr Leu Pro Ile Asp Glu Ser Asn Thr Ile His Leu Lys Val 185 Ile Glu Gln Arg Pro Asp Pro Pro Val Ala Gln Glu Tyr Asp Val Pro 200 205 Val Phe Thr Lys Asp Lys Glu Asp Phe Phe Asn Ser Gln Trp Asp Leu 215 Thr Thr Gln Gln Ile Leu Pro Tyr Ile Asp Gly Phe Arg His Ile Gln 230 235 Lys Ile Ser Ala Glu Ala Asp Val Glu Leu Asn Leu Val Arg Ile Ala 245 250 Ile Gln Asn Leu Leu Tyr Tyr Gly Val Val Thr Leu Val Ser Ile Leu 260 265

Gln Tyr Ser Asn Val Tyr Cys Pro Thr Pro Lys Val Gln Asp Leu Val

```
275
                            280
                                                285
Asp Asp Lys Ser Leu Gln Glu Ala Cys Leu Ser Tvr Val Thr Lys Gln
                        295
Gly His Lys Arg Ala Ser Leu Arg Asp Val Phe Gln Leu Tyr Cys Ser
                    310
Leu Ser Pro Gly Thr Thr Val Arg Asp Leu Ile Gly Arg His Pro Gln
                325
                                    330
Gln Leu Gln His Val Asp Glu Arg Lys Leu Ile Gln Phe Gly Leu Met
                                345
Lys Asn Leu Ile Arg Arg Leu Gln Lys Tyr Pro Val Arg Val Thr Arg
                            360
Glu Glu Gln Ser His Pro Ala Arg Leu Tyr Thr Gly Cys His Ser Tyr
                        375
                                             380
Asp Glu Ile Cys Cys Lys Thr Gly Met Ser Tyr His Glu Leu Asp Glu
                    390
                                                             400
Arg Leu Glu Asn Asp Pro Asn Ile Ile Cys Trp Lys
                405
                                    410
```

<210> 109 <211> 2113

<212> DNA

<213> Homo Sapiens

<400> 109

```
gtgcggttgg gaacgcggag cggacggatt cgattcaacg gggttccgga ccgcgctgcg
                                                                    60
ctatggagca ggtcaatgag ctgaaggaga aaggcaacaa ggccctgagc gtgggtaaca
                                                                   120
togatgatgo ottacagtgo tactoogaag otattaagot ggatooccac aaccacgtgo
                                                                   180
tgtacagcaa ccgttctgct gcctatgcca agaaaggaga ctaccagaag gcttatgagg
                                                                   240
atggctgcaa gactgtcgac ctaaagcctg actggggcaa gggctattca cgaaaagcag
                                                                   300
cagetetaga gttettaaac egetttgaag aageeaageg aacetatgag gaqqqettaa
                                                                   360
aacacgaggc aaataaccct caactgaaag agggtttaca gaatatggag gccaggttgg
                                                                   420
cagagagaaa attcatgaac cctttcaaca tgcctaatct gtatcagaag ttggagagtg
                                                                   480
atcccaggac aaggacacta ctcagtgatc ctacctaccg ggagctgata gagcagctac
                                                                   540
gaaacaagec ttctgacctg ggcacgaaac tacaagatec ccqqatcatq accactctca
                                                                   600
gcgtcctcct tggggtcgat ctgggcagta tggatgagga ggaagagatt gcaacacctc
                                                                   660
caccaccacc ccctcccaaa aaggagacca agccagagcc aatggaagaa gatcttccaq
                                                                   720
agaataagaa gcaggcactg aaagaaaaag agctggggaa cgatgcctac aagaagaaag
                                                                   780
actttgacac agccttgaag cattacgaca aagccaagga gctggacccc actaacatga
                                                                   840
cttacattac caatcaagca geggtatact ttgaaaaggg cgactacaat aagtgeeggg
                                                                   900
agetttgtga gaaggecatt gaagtgggga gagaaaaccg agaagactat cgacagattg
                                                                   960
ccaaagcata tgctcgaatt ggcaactcct acttcaaaga agaaaagtac aaggatgcca
                                                                  1020
tocatttcta taacaagtct ctggcagagc accgaacccc agatgtgctc aagaaatgcc
                                                                  1080
agcaggcaga gaaaatcctg aaggagcaag agcggctggc ctacataaac cccgacctgg
                                                                  1140
ctttggagga gaagaacaaa ggcaacgagt gttttcagaa aggggactat ccccaggcca
                                                                  1200
tgaagcatta tacagaagcc atcaaaagga acccgaaaga tgccaaatta tacagcaatc
                                                                  1260
gagetgeetg etacaccaaa eteetggagt teeagetgge actcaaggae tgtgaggaat
                                                                  1320
gtatecaget ggagecgace tteatcaagg gttatacaeg gaaageeget gegetggaag
                                                                  1380
cgatgaagga ctacaccaaa gccatggatg tgtaccagaa ggcgctagac ctggactcca
                                                                  1440
gctgtaagga ggcggcagac ggctaccagc gctgtatgat ggcgcagtac aaccggcacg
                                                                  1500
acageceega agatgtgaag egacgageea tggcegacee tgaggtgeag cagateatga
                                                                  1560
gtgacccage catgegeett atcetggaac agatgeagaa ggacccccag geactcageg
                                                                  1620
aacacttaaa gaatcctgta atagcacaga agatccagaa gctgatggat gtgggtctga
                                                                  1680
1740
gctgggaccg cggcgagcag cacggagcgg aagggagaga aggcctcatc
                                                                  1800
tetetatatt tatacataac eceggggaag acacagagac tegtacetge getgtttgtg
                                                                  1860
```

cogeogetge etetgggeee teccageaca egeatggtet etteaceget geeetegagt tocatgtotc tttcccctgc ccctagttgc tgtctcggct gctctcccat agttggtttt teccagetgt etcaegttgt ttattetgeg teccettete caataaaaca agecagttgg gcgtggttat aac 2113

2040 2100

<211> 543 <212> PRT <213> Homo Sapiens

<210> 110

<400> 110 Met Glu Gln Val Asn Glu Leu Lys Glu Lys Gly Asn Lys Ala Leu Ser 1 5 10 Val Gly Asn Ile Asp Asp Ala Leu Gln Cys Tyr Ser Glu Ala Ile Lys 25 Leu Asp Pro His Asn His Val Leu Tyr Ser Asn Arg Ser Ala Ala Tyr 40 Ala Lys Lys Gly Asp Tyr Gln Lys Ala Tyr Glu Asp Gly Cys Lys Thr 55 Val Asp Leu Lys Pro Asp Trp Gly Lys Gly Tyr Ser Arg Lys Ala Ala 70 75 Ala Leu Glu Phe Leu Asn Arg Phe Glu Glu Ala Lys Arg Thr Tyr Glu 85 90 Glu Gly Leu Lys His Glu Ala Asn Asn Pro Gln Leu Lys Glu Gly Leu 105 110 Gln Asn Met Glu Ala Arg Leu Ala Glu Arg Lys Phe Met Asn Pro Phe 115 120 Asn Met Pro Asn Leu Tyr Gln Lys Leu Glu Ser Asp Pro Arg Thr Arg 135 140 Thr Leu Leu Ser Asp Pro Thr Tyr Arg Glu Leu Ile Glu Gln Leu Arg 150 Asn Lys Pro Ser Asp Leu Gly Thr Lys Leu Gln Asp Pro Arg Ile Met 165 170 Thr Thr Leu Ser Val Leu Leu Gly Val Asp Leu Gly Ser Met Asp Glu 180 185 Glu Glu Glu Ile Ala Thr Pro Pro Pro Pro Pro Pro Pro Lys Lys Glu 200 Thr Lys Pro Glu Pro Met Glu Glu Asp Leu Pro Glu Asn Lys Lys Gln

220 Ala Leu Lys Glu Lys Glu Leu Gly Asn Asp Ala Tyr Lys Lys Asp 230 235 Phe Asp Thr Ala Leu Lys His Tyr Asp Lys Ala Lys Glu Leu Asp Pro 250 Thr Asn Met Thr Tyr Ile Thr Asn Gln Ala Ala Val Tyr Phe Glu Lys 265 Gly Asp Tyr Asn Lys Cys Arg Glu Leu Cys Glu Lys Ala Ile Glu Val 275 280 Gly Arg Glu Asn Arg Glu Asp Tyr Arg Gln Ile Ala Lys Ala Tyr Ala

295 300 Arg Ile Gly Asn Ser Tyr Phe Lys Glu Glu Lys Tyr Lys Asp Ala Ile

310 315 His Phe Tyr Asn Lys Ser Leu Ala Glu His Arg Thr Pro Asp Val Leu 325 330

Lys Lys Cys Gln Gln Ala Glu Lys Ile Leu Lys Glu Gln Glu Arg Leu

```
340
                                345
                                                     350
Ala Tyr Ile Asn Pro Asp Leu Ala Leu Glu Glu Lys Asn Lys Gly Asn
                            360
Glu Cys Phe Gln Lys Gly Asp Tyr Pro Gln Ala Met Lys His Tyr Thr
                        375
                                            380
Glu Ala Ile Lys Arg Asn Pro Lys Asp Ala Lys Leu Tyr Ser Asn Arg
                    390
                                        395
Ala Ala Cys Tyr Thr Lys Leu Leu Glu Phe Gln Leu Ala Leu Lys Asp
                405
                                    410
Cys Glu Glu Cys Ile Gln Leu Glu Pro Thr Phe Ile Lys Gly Tyr Thr
                                425
                                                     430
Arg Lys Ala Ala Ala Leu Glu Ala Met Lys Asp Tyr Thr Lys Ala Met
Asp Val Tyr Gln Lys Ala Leu Asp Leu Asp Ser Ser Cys Lys Glu Ala
                        455
Ala Asp Gly Tyr Gln Arg Cys Met Met Ala Gln Tyr Asn Arg His Asp
                    470
                                        475
Ser Pro Glu Asp Val Lys Arg Arg Ala Met Ala Asp Pro Glu Val Gln
                485
                                    490
Gln Ile Met Ser Asp Pro Ala Met Arg Leu Ile Leu Glu Gln Met Gln
            500
                                505
Lys Asp Pro Gln Ala Leu Ser Glu His Leu Lys Asn Pro Val Ile Ala
                            520
                                                 525
Gln Lys Ile Gln Lys Leu Met Asp Val Gly Leu Ile Ala Ile Arg
    530
                        535
      <210> 111
```

<211> 2765

<212> DNA

<213> Homo Sapiens

<400> 111

```
gggctgcgac tgacaagcgg ctctgcccgg gaccttctcg ctttcatcta gcgctgcact
                                                                      60
caatggaggg gegggeaceg eagtgettaa tgetgtetta actagtgtag gaaaacgget
caacccaccg ctgccgaaat gaagtataag aatcttatgg caagggcctt atatgacaat
                                                                     180
gtcccagagt gtgccgagga actggccttt cgcaagggag acatcctgac cgtcatagag
                                                                     240
cagaacacag ggggactgga aggatggtgg etgtgetegt tacaeggteg geaaggeatt
                                                                     300
gtcccaggca accgggtgaa gcttctgatt ggtcccatgc aggagactgc ctccagtcac
                                                                     360
gagcagcetg cetetggact gatgcagcag acetttggcc aacagaagct ctatcaagtg
                                                                     420
ccaaacccac aggetgetee eegagacacc atetaccaag tgecacette etaccaaaat
                                                                     480
cagggaattt accaagteec caetggeeac qqcacccaaq aacaaqaqqt atatcaggtg
ccaccatcag tgcagagaag cattggggga accagtgggc cccacgtggg taaaaaggtg
                                                                     600
ataacccccg tgaggacagg ccatggctac gtatacgagt acccatccag ataccaaaag
                                                                     660
gatgtctatg atatccctcc ttctcatacc actcaagggg tatacgacat ccctcctca
                                                                     720
tcagcaaaag gccctgtgtt ttcagttcca gtgggagaga taaaacctca aggggtgtat
gacatecege etacaaaagg ggtatatgee atteegeeet etgettgeeg ggatgaagea
                                                                     840
gggcttaggg aaaaagacta tgacttcccc cctcccatga gacaagctgg aaggccggac
ctcagaccgg agggggttta tgacattcct ccaacctgca ccaagccagc agggaaggac
                                                                     960
cttcatgtaa aatacaactg tgacattcca ggagctgcag aaccggtggc tcgaaggcac
                                                                    1020
cagagoetgt coccgaatca cocaccoccg caacteggae agteagtggg ctctcagaac
                                                                    1080
gacgcatatg atgtcccccg aggcgttcag tttcttgagc caccagcaga aaccagtgag
                                                                    1140
aaagcaaacc cccaggaaag ggatggtgtt tatgatgtcc ctctgcataa cccgccagat
                                                                    1200
gctaaagget etegggaett ggtggatggg ateaacegat tgtetttete cagtacagge
ageaccegga gtaacatgtc cacgtettee accteeteea aggagteete actgteagee
                                                                    1320
tececagete aggacaaaag getetteetg gatecagaca cagetattga gagactteag
                                                                    1380
```

```
eggetecage aggecettga gatgggtgte tecagectaa tggcaetggt cactacegae
                                                                    1440
tggeggtgtt aeggatatat ggaaagacae atcaatgaaa taegeacage agtggacaag
gtggagetgt teetgaagga gtaeeteeac tttgteaagg gagetgttge aaatgetgee
                                                                    1560
tgcctcccgg aactcatcct ccacaacaag atgaagcggg agctgcaacg agtcgaagac
                                                                    1620
toccaccaga toctgagtca aaccagccat gacttaaatg agtgcagctg gtccctgaat
atcttggcca tcaacaagcc ccagaacaag tgtgacgatc tggaccggtt tgtgatggtg
                                                                    1740
qcaaagacgg tgcccgatga cgccaagcag ctcaccacaa ccatcaacac caacgcagag
gecetettea gacceggece tggeagettg catetgaaga atgggeegga qaqeateatg
aactcaacgg agtacccaca cggtggctcc cagggacage tgctgcatcc tggtgaccac
                                                                    1920
aaggeecagg cecacaacaa ggeactgeec ecaggeetga geaaggagea ggeecetgae
                                                                    1980
tgtagcagca gtgatggttc tgagaggagc tggatggatg actacgatta cgtccaccta
                                                                    2040
cagggtaagg aggagtttga gaggcaacag aaagagctat tggaaaaaga qaatatcatg
                                                                    2100
aaacagaaca agatgcagct ggaacatcat cagctgagcc agttccagct gttggaacaa
                                                                    2160
gagattacaa agcccgtgga gaatgacatc tcgaagtgga agccctctca gagcctaccc
accacaaaca gtggcgtgag tgctcaggat cggcagttgc tgtgcttcta ctatgaccaa
                                                                    2280
tgtgagaccc atttcatttc ccttctcaac gccattgacg cactcttcag ttgtgtcagc
                                                                    2340
trageceage eccegegaat ettegtggea cacageaagt ttgtcateet cagtgeacae
aaactggtgt tcattggaga cacgctgaca cggcaggtga ctgcccagga cattcgcaac
aaagtcatga actccagcaa ccagctctgc gagcagctca agactatagt catggcaacc
aagatggccg ccctccatta ccccagcacc acggccctgc aggaaatggt gcaccaagtg
acagacettt etagaaatge ecagetgtte aagegetett tgetggagat ggeaacgtte
tgagaagaaa aaaaagagga aggggactgc gttaacggtt actaaggaaa actggaaata
                                                                    2700
ctgtctggtt tttgtaaatg ttatctattt ttgtagatat tttatataaa aatgaaatat
                                                                    2760
tttcc
                                                                    2765
```

<210> 112 <211> 834 <212> PRT

<213> Homo Sapiens

<400> 112

Met Lys Tyr Lys Asn Leu Met Ala Arg Ala Leu Tyr Asp Asn Val Pro Glu Cys Ala Glu Glu Leu Ala Phe Arg Lys Gly Asp Ile Leu Thr Val 25 Ile Glu Gln Asn Thr Gly Gly Leu Glu Gly Trp Trp Leu Cys Ser Leu 40 His Gly Arg Gln Gly Ile Val Pro Gly Asn Arg Val Lys Leu Leu Ile 55 Gly Pro Met Gln Glu Thr Ala Ser Ser His Glu Gln Pro Ala Ser Gly 75 Leu Met Gln Gln Thr Phe Gly Gln Gln Lys Leu Tyr Gln Val Pro Asn 90 Pro Gln Ala Ala Pro Arg Asp Thr Ile Tyr Gln Val Pro Pro Ser Tyr 105 Gln Asn Gln Gly Ile Tyr Gln Val Pro Thr Gly His Gly Thr Gln Glu 120 125 Gln Glu Val Tyr Gln Val Pro Pro Ser Val Gln Arg Ser Ile Gly Gly 135 Thr Ser Gly Pro His Val Gly Lys Lys Val Ile Thr Pro Val Arg Thr 150 Gly His Gly Tyr Val Tyr Glu Tyr Pro Ser Arg Tyr Gln Lys Asp Val 170 Tyr Asp Ile Pro Pro Ser His Thr Thr Gln Gly Val Tyr Asp Ile Pro 185

Pro Ser Ser Ala Lys Gly Pro Val Phe Ser Val Pro Val Gly Glu Ile 200 Lys Pro Gln Gly Val Tyr Asp Ile Pro Pro Thr Lys Gly Val Tyr Ala 215 Ile Pro Pro Ser Ala Cys Arg Asp Glu Ala Gly Leu Arg Glu Lys Asp 230 235 Tyr Asp Phe Pro Pro Pro Met Arg Gln Ala Gly Arg Pro Asp Leu Arg 245 250 Pro Glu Gly Val Tyr Asp Ile Pro Pro Thr Cys Thr Lys Pro Ala Gly 265 Lys Asp Leu His Val Lys Tyr Asn Cys Asp Ile Pro Gly Ala Ala Glu 275 280 Pro Val Ala Arg Arg His Gln Ser Leu Ser Pro Asn His Pro Pro Pro 295 300 Gln Leu Gly Gln Ser Val Gly Ser Gln Asn Asp Ala Tyr Asp Val Pro 310 315 Arg Gly Val Gln Phe Leu Glu Pro Pro Ala Glu Thr Ser Glu Lys Ala 325 330 Asn Pro Gln Glu Arg Asp Gly Val Tyr Asp Val Pro Leu His Asn Pro 340 345 Pro Asp Ala Lys Gly Ser Arg Asp Leu Val Asp Gly Ile Asn Arg Leu 360 Ser Phe Ser Ser Thr Gly Ser Thr Arg Ser Asn Met Ser Thr Ser Ser 375 380 Thr Ser Ser Lys Glu Ser Ser Leu Ser Ala Ser Pro Ala Gln Asp Lys 390 395 Arg Leu Phe Leu Asp Pro Asp Thr Ala Ile Glu Arg Leu Gln Arg Leu 405 410 Gln Gln Ala Leu Glu Met Gly Val Ser Ser Leu Met Ala Leu Val Thr 425 Thr Asp Trp Arg Cys Tyr Gly Tyr Met Glu Arg His Ile Asn Glu Ile 440 Arg Thr Ala Val Asp Lys Val Glu Leu Phe Leu Lys Glu Tyr Leu His 455 460 Phe Val Lys Gly Ala Val Ala Asn Ala Ala Cys Leu Pro Glu Leu Ile 470 475 Leu His Asn Lys Met Lys Arg Glu Leu Gln Arg Val Glu Asp Ser His 490 Gln Ile Leu Ser Gln Thr Ser His Asp Leu Asn Glu Cys Ser Trp Ser 500 505 Leu Asn Ile Leu Ala Ile Asn Lys Pro Gln Asn Lys Cys Asp Asp Leu 520 Asp Arg Phe Val Met Val Ala Lys Thr Val Pro Asp Asp Ala Lys Gln 535 540 Leu Thr Thr Thr Ile Asn Thr Asn Ala Glu Ala Leu Phe Arg Pro Gly 550 555 Pro Gly Ser Leu His Leu Lys Asn Gly Pro Glu Ser Ile Met Asn Ser 565 570 Thr Glu Tyr Pro His Gly Gly Ser Gln Gly Gln Leu Leu His Pro Gly 585 Asp His Lys Ala Gln Ala His Asn Lys Ala Leu Pro Pro Gly Leu Ser 600 Lys Glu Gln Ala Pro Asp Cys Ser Ser Ser Asp Gly Ser Glu Arg Ser 615 Trp Met Asp Asp Tyr Asp Tyr Val His Leu Gln Gly Lys Glu Glu Phe

```
635
Glu Arg Gln Gln Lys Glu Leu Leu Glu Lys Glu Asn Ile Met Lys Gln
                645
                                    650
Asn Lys Met Gln Leu Glu His His Gln Leu Ser Gln Phe Gln Leu Leu
                                665
Glu Gln Glu Ile Thr Lys Pro Val Glu Asn Asp Ile Ser Lys Trp Lys
                            680
Pro Ser Gln Ser Leu Pro Thr Thr Asn Ser Gly Val Ser Ala Gln Asp
                        695
                                            700
Arg Gln Leu Leu Cys Phe Tyr Tyr Asp Gln Cys Glu Thr His Phe Ile
                    710
                                        715
Ser Leu Leu Asn Ala Ile Asp Ala Leu Phe Ser Cys Val Ser Ser Ala
               725
                                    730
Gln Pro Pro Arg Ile Phe Val Ala His Ser Lys Phe Val Ile Leu Ser
                                745
Ala His Lys Leu Val Phe Ile Gly Asp Thr Leu Thr Arg Gln Val Thr
                            760
Ala Gln Asp Ile Arg Asn Lys Val Met Asn Ser Ser Asn Gln Leu Cys
                        775
Glu Gln Leu Lys Thr Ile Val Met Ala Thr Lys Met Ala Ala Leu His
                    790
                                        795
Tyr Pro Ser Thr Thr Ala Leu Gln Glu Met Val His Gln Val Thr Asp
                                    810
Leu Ser Arg Asn Ala Gln Leu Phe Lys Arg Ser Leu Leu Glu Met Ala
            820
                                825
Thr Phe
```

<210> 113 <211> 3429 <212> DNA

<213> Homo Sapiens

<400> 113

gagacaaagc agegeeegte tgetteggge etetggaatt tagegetege ceagetagee gcagaaatga ctgctgtcca tgcaggcaac ataaacttca agtgggatcc taaaagtcta 120 gagatcagga ctctggcagt tgagagactg ttggaqcctc ttgttacaca ggttacaacc 180 cttgtaaaca ccaatagtaa agggccctct aataagaaga gaggtcgttc taagaaggcc 240 catgttttgg ctgcatctgt tgaacaagca actgagaatt tcttggagaa gggggataaa 300 attgcgaagg agagccagtt tctcaaggag gagcttgtgg ctgctgtaga agatgttcga 360 aaacaaggtg atttgatgaa ggctgctgca ggagagttcg cagatgatcc ctgctcttct 420 gtgaagegag gcaacatggt tegggeaget egagetttge tetetgetgt tacceggttg ctgattttgg ctgacatggc agatgtctac aaattacttg ttcagctgaa agttgtggaa 540 gatggtatct tgaagttgag gaatgctggc aatgaacaag acttaggaat ccagtataaa 600 gecetaaaac etgaagtgga taagetgaac attatggeag eeaaaagaca acaggaattg 660 aaagatgttg gccatcgtga tcagatggct gcagctagag gaatcctgca gaagaacgtt 720 cogatectet atactgeate ceaggeatge etacageace etgatgtege ageetataag 780 gccaacaggg acctgatata caagcagctg cagcaggcgg tcacaggcat ttccaatgca gcccaggcca ctgcctcaga cgatgcctca cagcaccagg gtggaggagg aggagaactg 900 gcatatgcac tcaataactt tgacaaacaa atcattgtgg accccttgag cttcagcgag 960 gagegettta ggeetteeet ggaggagegt etggaaagea teattagtgg ggetgeettg 1020 atggccgact cgtcctgcac gcgtgatgac cgtcgtgagc gaattgtggc agagtgtaat 1080 getgteegee aggeeetgea ggaeetgett teggagtaca tgggeaatge tggaegtaaa 1140 gaaagaagtg atgcactcaa ttctgcaata gataaaatga ccaagaagac cagggacttg 1200 cgtagacagc tccgcaaagc tgtcatggac cacgtttcag attctttcct ggaaaccaat 1260 WO 99/04265 PCT/US98/14679

```
gttccacttt tggtattgat tgaagctgca aagaatggaa atgagaaaga agttaaggag
                                                                   1320
tatgcccaag ttttccgtga acatgccaac aaattgattg aggttgccaa cttggcctgt
tocatotoaa ataatgaaga aggtgtaaag ottqttoqaa tqtotqoaag coagttagaa
                                                                   1440
qccctctqtc ctcaggttat taatgctgca ctggctttag cagcaaaacc acagagtaaa
                                                                   1500
ctggcccaag agaacatgga tetttttaaa gaacaatggg aaaaacaagt ccqtqttctc
acagatgetg tegatgacat tacttecatt gatgaettet tggetgtete agagaateae
                                                                   1620
attttggaag atgtgaacaa atgtgtcatt gctctccaag agaaggatgt ggatggcctg
                                                                   1680
gaccgcacag ctggtgcaat tcgaggccgg gcagcccggg tcattcacgt agtcacctca
gagatggaca actatgagcc aggagtetac acagagaagg ttetggaagc cactaagctg
                                                                   1800
ctctccaaca cagtcatgcc acgttttact gagcaagtag aagcagccgt ggaagccctc
                                                                   1860
ageteggace etgeecagee catggatgag aatgagttta tegatgette eegeetggta
                                                                   1920
tatgatggca tccgggacat caggaaagca gtgctgatga taaggacccc tqaqqaqttq
                                                                   1980
gatgactetg actttgagac agaagatttt gatgtcagaa gcaggacgag cgtccagaca
                                                                   2040
gaagacgatc agctgatagc tggccagagt gcccqqqcqa tcatqqctca qcttcccag
                                                                   2100
gagcaaaaag cgaagattgc ggaacaggtg gccagcttcc aggaagaaaa gagcaagctg
                                                                   2160
gatqctqaag tgtccaaatq qqacgacagt ggcaatgaca tcattgtgct ggccaaqcaq
                                                                   2220
atgtgcatga ttatgatgga gatgacagac tttacccgag gtaaaggacc actcaaaaat
                                                                   2280
acateggatg teateagtge tgecaagaaa attgetgagg caggatecag gatggacaag
                                                                   2340
cttggccgca ccattgcaga ccattgcccc gactcggctt gcaagcagga cctgctggcc
                                                                   2400
tacctgcaac gcategceet ctactgccac cagetgaaca tetgcagcaa ggtcaaggee
                                                                   2460
gaggtgcaga atctcggcgg ggagcttgtt gtctctgggg tggacagcgc catgtccctg
                                                                   2520
atccaggcag ccaagaactt gatgaatgct gtggtgcaga cagtgaaggc atcctacgtc
                                                                   2580
gcctctacca aataccaaaa gtcacagggt atggcttccc tcaaccttcc tgctgtgtca
                                                                   2640
tggaagatga aggcaccaga gaaaaagcca ttggtgaaga gagagaaaca ggatgagaca
                                                                   2700
cagaccaaga ttaaacgggc atctcagaag aagcacgtga acccggtgca ggccctcagc
                                                                   2760
gagttcaaag ctatggacag catctaagtc tgcccaggcc ggccgccccc acccctcqqq
                                                                   2820
gctcctgaat atcagtcact gttcgtcact caaatgaatt tgctaaatac aacactgata
ctagattcca cagggaaatg ggcagactga accagtccag gtggtgaatt ttccaagaac
                                                                   2940
atagtttaag ttgattaaaa atgcttttag aatgcaggag cctacttcta gctgtatttt
                                                                   3000
ttgtatgett aaataaaaat aaaaatteat aaccaaagag aateceacat tagettgtta
                                                                   3060
gtaatgetet gaccaageeg agatgeeeat tetettaqtq atqqcqqcqt tagqqtttga
                                                                   3120
gagaagggaa tttggctcaa cttcagttga gagggtgcag tccagacagc ttgactqctt
                                                                   3180
ttaaatgacc aaagatgacc tgtggtaagc aacctgggca tcttagaagc agtccctgga
                                                                   3240
gaaggcatgt toocagaaag gtototggag ggacaaactc actcagtaaa acataatgta
                                                                   3300
3360
attactaatg tacgctgctg caggacatta ataaagttgc ttttttaggc tacagtgtct
                                                                   3420
cgatgccat
```

3429

<210> 114 <211> 906 <212> PRT

<213> Homo Sapiens

<400> 114

Met Thr Ala Val His Ala Gly Asn Ile Asn Phe Lys Trp Asp Pro Lys Ser Leu Glu Ile Arg Thr Leu Ala Val Glu Arg Leu Leu Glu Pro Leu 25 Val Thr Gln Val Thr Thr Leu Val Asn Thr Asn Ser Lys Gly Pro Ser Asn Lys Lys Arg Gly Arg Ser Lys Lys Ala His Val Leu Ala Ala Ser 55 Val Glu Gln Ala Thr Glu Asn Phe Leu Glu Lys Gly Asp Lys Ile Ala Lys Glu Ser Gln Phe Leu Lys Glu Glu Leu Val Ala Ala Val Glu Asp

85 90 Val Arg Lys Gln Gly Asp Leu Met Lys Ala Ala Ala Gly Glu Phe Ala 105 Asp Asp Pro Cys Ser Ser Val Lys Arg Gly Asn Met Val Arg Ala Ala 120 Arg Ala Leu Leu Ser Ala Val Thr Arg Leu Leu Ile Leu Ala Asp Met 135 Ala Asp Val Tyr Lys Leu Leu Val Gln Leu Lys Val Val Glu Asp Gly 150 155 Ile Leu Lys Leu Arg Asn Ala Gly Asn Glu Gln Asp Leu Gly Ile Gln 170 Tyr Lys Ala Leu Lys Pro Glu Val Asp Lys Leu Asn Ile Met Ala Ala 185 Lys Arg Gln Gln Glu Leu Lys Asp Val Gly His Arg Asp Gln Met Ala 200 Ala Ala Arg Gly Ile Leu Gln Lys Asn Val Pro Ile Leu Tyr Thr Ala 215 220 Ser Gln Ala Cys Leu Gln His Pro Asp Val Ala Ala Tyr Lys Ala Asn 230 235 Arg Asp Leu Ile Tyr Lys Gln Leu Gln Gln Ala Val Thr Gly Ile Ser 245 250 Asn Ala Ala Gln Ala Thr Ala Ser Asp Asp Ala Ser Gln His Gln Gly 260 265 Gly Gly Gly Glu Leu Ala Tyr Ala Leu Asn Asn Phe Asp Lys Gln 280 Ile Ile Val Asp Pro Leu Ser Phe Ser Glu Glu Arg Phe Arg Pro Ser 295 Leu Glu Glu Arg Leu Glu Ser Ile Ile Ser Gly Ala Ala Leu Met Ala 310 315 Asp Ser Ser Cys Thr Arg Asp Asp Arg Arg Glu Arg Ile Val Ala Glu 325 330 Cys Asn Ala Val Arg Gln Ala Leu Gln Asp Leu Leu Ser Glu Tyr Met 340 345 Gly Asn Ala Gly Arg Lys Glu Arg Ser Asp Ala Leu Asn Ser Ala Ile 360 365 Asp Lys Met Thr Lys Lys Thr Arg Asp Leu Arg Arg Gln Leu Arg Lys 375 380 Ala Val Met Asp His Val Ser Asp Ser Phe Leu Glu Thr Asn Val Pro 390 395 Leu Leu Val Leu Ile Glu Ala Ala Lys Asn Gly Asn Glu Lys Glu Val 405 410 Lys Glu Tyr Ala Gln Val Phe Arg Glu His Ala Asn Lys Leu Ile Glu 425 Val Ala Asn Leu Ala Cys Ser Ile Ser Asn Asn Glu Glu Gly Val Lys 440 Leu Val Arg Met Ser Ala Ser Gln Leu Glu Ala Leu Cys Pro Gln Val 455 Ile Asn Ala Ala Leu Ala Leu Ala Ala Lys Pro Gln Ser Lys Leu Ala 470 475 Gln Glu Asn Met Asp Leu Phe Lys Glu Gln Trp Glu Lys Gln Val Arg 485 490 Val Leu Thr Asp Ala Val Asp Asp Ile Thr Ser Ile Asp Asp Phe Leu 505 Ala Val Ser Glu Asn His Ile Leu Glu Asp Val Asn Lys Cys Val Ile 520

WO 99/04265 PCT/US98/14679

```
Ala Leu Gln Glu Lys Asp Val Asp Gly Leu Asp Arg Thr Ala Gly Ala
                       535
Ile Arg Gly Arg Ala Ala Arg Val Ile His Val Val Thr Ser Glu Met
                                       555
Asp Asn Tyr Glu Pro Gly Val Tyr Thr Glu Lys Val Leu Glu Ala Thr
               565
                                   570
Lys Leu Leu Ser Asn Thr Val Met Pro Arg Phe Thr Glu Gln Val Glu
           580
                              585
Ala Ala Val Glu Ala Leu Ser Ser Asp Pro Ala Gln Pro Met Asp Glu
                           600
Asn Glu Phe Ile Asp Ala Ser Arg Leu Val Tyr Asp Gly Ile Arg Asp
                       615
                                           620
Ile Arg Lys Ala Val Leu Met Ile Arg Thr Pro Glu Glu Leu Asp Asp
                   630
                                       635
Ser Asp Phe Glu Thr Glu Asp Phe Asp Val Arg Ser Arg Thr Ser Val
               645
                                   650
Gln Thr Glu Asp Asp Gln Leu Ile Ala Gly Gln Ser Ala Arg Ala Ile
                               665
Met Ala Gln Leu Pro Gln Glu Gln Lys Ala Lys Ile Ala Glu Gln Val
                           680
                                               685
Ala Ser Phe Gln Glu Glu Lys Ser Lys Leu Asp Ala Glu Val Ser Lys
                       695
                                           700
Trp Asp Asp Ser Gly Asn Asp Ile Ile Val Leu Ala Lys Gln Met Cys
                   710
                                       715
Met Ile Met Met Glu Met Thr Asp Phe Thr Arg Gly Lys Gly Pro Leu
               725
                                   730
Lys Asn Thr Ser Asp Val Ile Ser Ala Ala Lys Lys Ile Ala Glu Ala
           740
                               745
Gly Ser Arg Met Asp Lys Leu Gly Arg Thr Ile Ala Asp His Cys Pro
                           760
Asp Ser Ala Cys Lys Gln Asp Leu Leu Ala Tyr Leu Gln Arg Ile Ala
                       775
                                           780
Leu Tyr Cys His Gln Leu Asn Ile Cys Ser Lys Val Lys Ala Glu Val
                   790
                                       795
Gln Asn Leu Gly Gly Glu Leu Val Val Ser Gly Val Asp Ser Ala Met
               805
                                   810
Ser Leu Ile Gln Ala Ala Lys Asn Leu Met Asn Ala Val Val Gln Thr
                               825
Val Lys Ala Ser Tyr Val Ala Ser Thr Lys Tyr Gln Lys Ser Gln Gly
                           840
Met Ala Ser Leu Asn Leu Pro Ala Val Ser Trp Lys Met Lys Ala Pro
                       855
Glu Lys Lys Pro Leu Val Lys Arg Glu Lys Gln Asp Glu Thr Gln Thr
                   870
Lys Ile Lys Arg Ala Ser Gln Lys Lys His Val Asn Pro Val Gln Ala
                                   890
Leu Ser Glu Phe Lys Ala Met Asp Ser Ile
           900
```

<210> 115 <211> 1701

<212> DNA

<213> Homo Sapiens

<400> 115

```
eggeeggeeg ceatggetaa egtggetgae acgaagetgt acgacateet gggegtteee
                                                                       60
gegggegeca gegagaacga getgaagaag geatacagaa agttagecaa ggaatateat
cctgataaga atccccaaat gcaggagaca aactttaaag aaataagttt tgcatatgaa
                                                                      180
gtactatcaa atcctgagaa gcgtgagtta tatgacagat acggagagca aggtcttcgg
                                                                      240
gaaggcagcg gcggaggtgg gtggcatgga ttgatatttt ctctcaccgt tttttqtqqq
                                                                      300
ggattgttcg gcttcatggg caatcagagt agaagtcgaa atggcagaag aagaggagag
                                                                      360
gacatgatgc atccactcaa agtatcttta gaagatctgt ataatggcaa gacaaccaaa
                                                                      420
ctacaactta gcaagaatgt gctctgtagt gcatgcagtg gccaaggcgg aaagtctgga
                                                                      480
getgtecaaa agtgtagtge ttgtegaggt egaggtgtge geatcatgat cagacagetg
                                                                      540
gctccaggga tggtacaaca gatgcagtct gtgtgctctg attgtaatgg tgaaggagag
                                                                      600
qtaattaatg aaaaagaccg ctgtaaaaaa tgtgaaggga agaaggtgat taaagaagtc
                                                                      660
aagattettg aagtecaegt agacaaagge atgaaacatg gacagagaat tacatteact
                                                                      720
ggggaagcag accaggcccc agagtggaac ccggagacat tgttctttt gctaccagga
                                                                      780
gaaaagaaca tggaggtatt tcagagagat gggaatgatt tgcacatgac atataaaata
                                                                      840
ggacttgttg aagctctatg tggatttcag ttcacattaa gccaccttga tggacgtcag
                                                                      900
attgtggtga aatacccccc tggcaaagta attgaaccag ggtgtgttcg tgtagttcga
                                                                      960
ggtgaaggga tgccgcagta tcgtaatccc tttgaaaaag gtgggcttta cataaaqttt
gatgtgcagt ttcctgaaaa caactggatc aacccagaca agctttctga actagaagat
                                                                     1080
cttctgccat ctagaccgga agttcctaac ataattggag aaacagagga ggtagagctt
                                                                     1140
caggaatttg atagcactcg aggctcagga ggtggtcaga ggcgtgaagc ctataatgat
agetetgatg aagaaageag cagecateat ggacetggag tgeagtgtge ceateagtaa
                                                                     1260
actotgoaaa caaattgoac aggtggattt totttocaca tttgcotgat ttgttotcaq
                                                                     1320
caatccaget ggagtgtett atcaatccag atgaactgag ggacatetgt tqqtctatqt
                                                                     1380
ataactttta aaattggtat agtatctaca gagtgtataa tttaaactaa ccacaaagct
                                                                     1440
ttacatcttc attttgactg ttccatagca gaataaagca cttgaaagga aacaagactc
                                                                     1500
cettteacae atggattatt ataagtttea ateetggtat etgtgettga tttttateag
                                                                     1560
ttttgtgtag atttttatgt ttcatatttt aaatttaaat cccacattgt aaagtttgta
caatttgtcc tgaagetttg tgtttggctg cacctgcata agctgctaca aatagaataa
                                                                     1680
agaatttcat agcctgtaaa a
                                                                     1701
```

<210> 116 <211> 415 <212> PRT

<213> Homo Sapiens

<400> 116

Met Ala Asn Val Ala Asp Thr Lys Leu Tyr Asp Ile Leu Gly Val Pro 5 15 Ala Gly Ala Ser Glu Asn Glu Leu Lys Lys Ala Tyr Arg Lys Leu Ala 25 Lys Glu Tyr His Pro Asp Lys Asn Pro Gln Met Gln Glu Thr Asn Phe Lys Glu Ile Ser Phe Ala Tyr Glu Val Leu Ser Asn Pro Glu Lys Arg Glu Leu Tyr Asp Arg Tyr Gly Glu Gln Gly Leu Arg Glu Gly Ser Gly Gly Gly Gly Trp His Gly Leu Ile Phe Ser Leu Thr Val Phe Cys Gly Gly Leu Phe Gly Phe Met Gly Asn Gln Ser Arg Ser Arg Asn Gly Arg 105 Arg Arg Gly Glu Asp Met Met His Pro Leu Lys Val Ser Leu Glu Asp 120 Leu Tyr Asn Gly Lys Thr Thr Lys Leu Gln Leu Ser Lys Asn Val Leu 135 Cys Ser Ala Cys Ser Gly Gln Gly Gly Lys Ser Gly Ala Val Gln Lys

```
150
                                        155
Cys Ser Ala Cys Arg Gly Arg Gly Val Arg Ile Met Ile Arg Gln Leu
                165
                                    170
Ala Pro Gly Met Val Gln Gln Met Gln Ser Val Cys Ser Asp Cys Asn
                                185
Gly Glu Gly Glu Val Ile Asn Glu Lys Asp Arg Cys Lys Lys Cys Glu
                            200
Gly Lys Lys Val Ile Lys Glu Val Lys Ile Leu Glu Val His Val Asp
                        215
                                            220
Lys Gly Met Lys His Gly Gln Arg Ile Thr Phe Thr Gly Glu Ala Asp
                    230
                                        235
Gln Ala Pro Glu Trp Asn Pro Glu Thr Leu Phe Phe Leu Leu Pro Gly
               245
                                    250
Glu Lys Asn Met Glu Val Phe Gln Arg Asp Gly Asn Asp Leu His Met
                                265
Thr Tyr Lys Ile Gly Leu Val Glu Ala Leu Cys Gly Phe Gln Phe Thr
                            280
Leu Ser His Leu Asp Gly Arg Gln Ile Val Val Lys Tyr Pro Pro Gly
                        295
Lys Val Ile Glu Pro Gly Cys Val Arg Val Val Arg Gly Glu Gly Met
                   310
                                        315
Pro Gln Tyr Arg Asn Pro Phe Glu Lys Gly Gly Leu Tyr Ile Lys Phe
               325
                                    330
Asp Val Gln Phe Pro Glu Asn Asn Trp Ile Asn Pro Asp Lys Leu Ser
                                345
                                                    350
Glu Leu Glu Asp Leu Leu Pro Ser Arg Pro Glu Val Pro Asn Ile Ile
Gly Glu Thr Glu Glu Val Glu Leu Gln Glu Phe Asp Ser Thr Arg Gly
                        375
Ser Gly Gly Gln Arg Arg Glu Ala Tyr Asn Asp Ser Ser Asp Glu
                                        395
Glu Ser Ser His His Gly Pro Gly Val Gln Cys Ala His Gln
               405
                                    410
```

<210> 117

<211> 1821

<212> DNA

<213> Homo Sapiens

<400> 117

cgcgtgaact gcttcctgca ggctggccat ggcgcttcac gttcccaagg ctccgggctt tgcccagatg ctcaaggagg gagcgaaaca cttttcagga ttagaagagg ctgtgtatag 120 aaacatacaa gettgeaagg agettgeeca aaccactegt acageatatg gaccaaaagg 180 aatgaacaaa atggttatca accacttgga gaagttgttt gtgacaaacg atgcagcaac tattttaaga gaactagaag tacagcatcc tgctgcaaaa atgattgtaa tggcttctca 300 tatgcaagag caagaagttg gagatggcac aaactttgtt ctggtatttg ctggagctct 360 cctqgaatta gctgaagaac ttctgaggat tggcctgtca gtttcagagg tcatagaagg ttatgaaata gootgoagaa aagotoatga gattottoot aatttggtat gttgttotgo aaaaaaacctt cgagatattg atgaagtctc atctctactt cgtacctcca taatgagtaa 540 acaatatggt aatgaagtat ttctggccaa gcttattgct caggcatgcg tatctatttt 600 tectgattee ggccatttea atgttgataa catcagagtt tgtaaaatte tgggetetgg 660 tatcagttcc tcttcagtat tgcatggcat ggtttttaag aaggaaaccg aaggtgatgt 720 aacatctgtc aaagatgcaa aaatagcagt gtactcttgt ccttttgatg gcatgataac 780 agaaactaag ggaacagtgt tgataaagac tgctgaagaa ttgatgaatt ttagtaaggg 840 agaagaaaac ctcatggatg cacaagtcaa agctattgct gatactggtg caaatgtcgt 900 agtaacaggt ggcaaagtgg cagacatggc tcttcattat gcaaataaat ataatatcat 960 gttagtgagg ctaaactcaa aatgggatct ccgaagactt tgtaaaactg ttggtgctac agetetteet agattgacae eteetgteet tgaagaaatg ggacaetgtg acagtgttta ceteteagaa gttggagata eteaggtggt ggtttttaag catgaaaagg aagatggege 1140 catttetace atagtactte gaggetetac agacaatetg atggatgaca tagaaagggt 1200 agtagacgat ggtgttaata ctttcaaagt tcttacaagg gataaacgtc ttgtacccqq 1260 aggtggagca acagaaattg aattagccaa acagatcaca tcatatggag agacatgtcc 1320 tggacttgaa cagtatgcta ttaagaagtt tgctgaggca tttgaagcta ttccccgcgc actggcagaa aactctggag ttaaggccaa tgaagtaatc tctaaacttt atgcagtaca tcaagaagga aataaaaacg ttggattaga tattgaggct gaagtccctg ctgtaaagga 1500 catgetggaa getggtatte tagataetta eetgggaaaa tattgggeta teaaaetege 1560 tactaatgct gcagtcactg tacttagagt ggatcagatc atcatggcaa aaccagctgg 1620 tgggcccaag cctccaagtg ggaagaaaga ctgggatgat gaccaaaatg attgaaattg gettaatttt tactgtaggt gaaggetgta tttgtagtag tactcaagaa teacetgatg 1740 ttttcttatt ctccttaaat taagagttat tttgtgtttg tattcttggc tggatgttat 1800 aataaacata ttqttactqt c 1821

<210> 118 <211> 548 <212> PRT

<213> Homo Sapiens

<400> 118

Met Ala Leu His Val Pro Lys Ala Pro Gly Phe Ala Gln Met Leu Lys 10 15 Glu Gly Ala Lys His Phe Ser Gly Leu Glu Glu Ala Val Tyr Arg Asn 20 Ile Gln Ala Cys Lys Glu Leu Ala Gln Thr Thr Arg Thr Ala Tyr Gly 40 Pro Lys Gly Met Asn Lys Met Val Ile Asn His Leu Glu Lys Leu Phe Val Thr Asn Asp Ala Ala Thr Ile Leu Arg Glu Leu Glu Val Gln His 70 75 Pro Ala Ala Lys Met Ile Val Met Ala Ser His Met Gln Glu Gln Glu 90 Val Gly Asp Gly Thr Asn Phe Val Leu Val Phe Ala Gly Ala Leu Leu 105 Glu Leu Ala Glu Glu Leu Leu Arg Ile Gly Leu Ser Val Ser Glu Val 120 Ile Glu Gly Tyr Glu Ile Ala Cys Arg Lys Ala His Glu Ile Leu Pro 135 140 Asn Leu Val Cys Cys Ser Ala Lys Asn Leu Arg Asp Ile Asp Glu Val 150 155 Ser Ser Leu Leu Arg Thr Ser Ile Met Ser Lys Gln Tyr Gly Asn Glu 170 Val Phe Leu Ala Lys Leu Ile Ala Gln Ala Cys Val Ser Ile Phe Pro 185 Asp Ser Gly His Phe Asn Val Asp Asn Ile Arg Val Cys Lys Ile Leu 200 205 Gly Ser Gly Ile Ser Ser Ser Val Leu His Gly Met Val Phe Lys 215 Lys Glu Thr Glu Gly Asp Val Thr Ser Val Lys Asp Ala Lys Ile Ala 230 235 Val Tyr Ser Cys Pro Phe Asp Gly Met Ile Thr Glu Thr Lys Gly Thr 250

```
Val Leu Ile Lys Thr Ala Glu Glu Leu Met Asn Phe Ser Lys Gly Glu
Glu Asn Leu Met Asp Ala Gln Val Lys Ala Ile Ala Asp Thr Gly Ala
                            280
Asn Val Val Val Thr Gly Gly Lys Val Ala Asp Met Ala Leu His Tyr
                        295
                                            300
Ala Asn Lys Tyr Asn Ile Met Leu Val Arg Leu Asn Ser Lys Trp Asp
                    310
                                        315
Leu Arg Arg Leu Cys Lys Thr Val Gly Ala Thr Ala Leu Pro Arg Leu
                325
                                    330
Thr Pro Pro Val Leu Glu Glu Met Gly His Cys Asp Ser Val Tyr Leu
            340
                                345
                                                    350
Ser Glu Val Gly Asp Thr Gln Val Val Val Phe Lys His Glu Lys Glu
                            360
Asp Gly Ala Ile Ser Thr Ile Val Leu Arg Gly Ser Thr Asp Asn Leu
                        375
                                            380
Met Asp Asp Ile Glu Arg Val Val Asp Asp Gly Val Asn Thr Phe Lys
                                        395
Val Leu Thr Arg Asp Lys Arg Leu Val Pro Gly Gly Gly Ala Thr Glu
                                    410
Ile Glu Leu Ala Lys Gln Ile Thr Ser Tyr Gly Glu Thr Cys Pro Gly
                                425
Leu Glu Gln Tyr Ala Ile Lys Lys Phe Ala Glu Ala Phe Glu Ala Ile
                            440
                                                445
Pro Arg Ala Leu Ala Glu Asn Ser Gly Val Lys Ala Asn Glu Val Ile
                        455
Ser Lys Leu Tyr Ala Val His Gln Glu Gly Asn Lys Asn Val Gly Leu
                    470
                                        475
Asp Ile Glu Ala Glu Val Pro Ala Val Lys Asp Met Leu Glu Ala Gly
                485
                                    490
Ile Leu Asp Thr Tyr Leu Gly Lys Tyr Trp Ala Ile Lys Leu Ala Thr
                                505
Asn Ala Ala Val Thr Val Leu Arg Val Asp Gln Ile Ile Met Ala Lys
                            520
Pro Ala Gly Gly Pro Lys Pro Pro Ser Gly Lys Lys Asp Trp Asp Asp
                        535
                                            540
Asp Gln Asn Asp
545
```

<210> 119 <211> 1321

<212> DNA

<213> Homo Sapiens

<400> 119

cccccaagat ggctgctgag gacgagttac agctgccgcg gctccccgag ctgttcgaaa ctggtagaca gttactggac gaagtagaag tggcgactga acccgccggt tcccggatag 120 tccaggagaa ggtgttcaag ggcttggacc tccttgagaa ggctgccgaa atgttatcgc 180 agetegaett gtteageega aatgaagatt tggaagagat tgetteeace gaeetgaagt accttttggt gccagcgttt caaggageee teaccatgaa acaagteaac cccagcaage 300 gtctagatca tttgcagcgg gctcgagaac actttataaa ctacttaact cagtgccatt 360 gctatcatgt ggcagagttt gagctgccca aaaccatgaa caactctgct gaaaatcaca ctgccaattc ctccatggct tatcctagtc tcgttgctat ggcatctcaa agacaggcta 480 aaatacagag atacaagcag aagaaggagt tggagcatag gttgtctgca atgaaatctg 540 ctgtggaaag tggtcaagca gatgatgagc gtgttcgtga atattatctt cttcaccttc 600

```
agaqqtqqat tgatatcagc ttagaagaga ttgagagcat tgaccaggaa ataaaqatcc
                                                                      660
tgagagaaag agactettea agagaggeat caacttetaa eteatetege caggagagge
                                                                      720
ctccagtgaa accettcatt ctcactcgga acatggetca agccaaagta tttggagetg
gttatccaag tctgccaact atgacggtga gtgactggta tgagcaacat cggaaatatg
                                                                      840
gagcattacc ggatcaggga atagccaagg cagcaccaga ggaattcaga aaagcagctc
                                                                      900
agcaacagga agaacaagaa gaaaaggagg aagaggatga tgaacaaaca ctccacaqag
                                                                      960
cccgggagtg ggatgactgg aaggacaccc atcctagggg ctatgggaac cgacagaaca
                                                                     1020
tgggctgatc ttcccacaac accacaggac tgcagggtgc acaactccct gccaaggaaa
                                                                     1080
accatgcagt cotcocctcc ctggtctcct gcttcagctc tgtacaacga gggcaaagat
gctaaatctt gctttgcatt cagtaaagtg tcaagtgatt aagtgtgtat ttgtacccta
                                                                     1200
gatgatatga accagcagtc ttgttttggc atcatcctca tcatgttgta ttccagcttc
                                                                     1260
ttaagtggaa ggaaaagagt getgagaaat ggetetgtat aatetatgge tateegaatt
                                                                     1320
                                                                     1321
```

<210> 120 <211> 339 <212> PRT <213> Homo Sapiens

<400> 120

Met Ala Ala Glu Asp Glu Leu Gln Leu Pro Arg Leu Pro Glu Leu Phe 10 Glu Thr Gly Arg Gln Leu Leu Asp Glu Val Glu Val Ala Thr Glu Pro 25 Ala Gly Ser Arg Ile Val Gln Glu Lys Val Phe Lys Gly Leu Asp Leu 40 Leu Glu Lys Ala Ala Glu Met Leu Ser Gln Leu Asp Leu Phe Ser Arg 60 Asn Glu Asp Leu Glu Glu Ile Ala Ser Thr Asp Leu Lys Tyr Leu Leu 70 Val Pro Ala Phe Gln Gly Ala Leu Thr Met Lys Gln Val Asn Pro Ser 90 Lys Arg Leu Asp His Leu Gln Arg Ala Arg Glu His Phe Ile Asn Tyr 105 Leu Thr Gln Cys His Cys Tyr His Val Ala Glu Phe Glu Leu Pro Lys 120 Thr Met Asn Asn Ser Ala Glu Asn His Thr Ala Asn Ser Ser Met Ala 135 Tyr Pro Ser Leu Val Ala Met Ala Ser Gln Arg Gln Ala Lys Ile Gln 150 155 Arg Tyr Lys Gln Lys Lys Glu Leu Glu His Arg Leu Ser Ala Met Lys 170 Ser Ala Val Glu Ser Gly Gln Ala Asp Asp Glu Arg Val Arg Glu Tyr 185 Tyr Leu Leu His Leu Gln Arg Trp Ile Asp Ile Ser Leu Glu Glu Ile 200 Glu Ser Ile Asp Gln Glu Ile Lys Ile Leu Arg Glu Arg Asp Ser Ser 215 220 Arg Glu Ala Ser Thr Ser Asn Ser Ser Arg Gln Glu Arg Pro Pro Val 230 235 Lys Pro Phe Ile Leu Thr Arg Asn Met Ala Gln Ala Lys Val Phe Gly 245 250 Ala Gly Tyr Pro Ser Leu Pro Thr Met Thr Val Ser Asp Trp Tyr Glu

Gln His Arg Lys Tyr Gly Ala Leu Pro Asp Gln Gly Ile Ala Lys Ala

Asn Met Glv

275 280 285
Ala Pro Glu Glu Phe Arg Lys Ala Ala Gln Gln Gln Glu Glu Gln Glu 290 295
Glu Lys Glu Glu Glu Asp Asp Glu Gln Thr Leu His Arg Ala Arg Glu 305 310 315 325
Trp Asp Asp Trp Lys Asp Thr His Pro Arg Gly Tyr Gly As Arg Glu 325 335

<210> 121 <211> 2965 <212> DNA

<213> Homo Sapiens

<400> 121

geggaggteg geggtegggt cegtetetge cegeggetgt ggeggegeeg geggateeag cottagogtt cotototggg cggcggcgc ggcqqctcqq ttqacqcetc ctccqccagc 120 tgagcccgcg ggagcccagg acgccgcttc cccgcccatc cccgctcccc gaggccggcc 180 gcctggtcat ggcgcagccg ggcccggctt cccagcctga cgtttctctt caqcaacqqq 240 tagcagaatt ggaaaaaatt aatgcagaat ttttacgtgc acaacagcaq cttqaacaaq aatttaatca aaagagagca aaatttaagg agttatattt qqctaaaqaq qaqqatctqa 360 agaggcaaaa tgcagtatta caagctgcac aagatgattt gggacacctt cgaacccagc 420 tgtgggaagc tcaagcagag atggagaata ttaaggcgat tgccacagtc tctgagaaca 480 ccaagcaaga agctatagat gaagtgaaaa gacagtggag agaagaagtt gcttcacttc 540 aggotgttat gaaagaaaca gttogtgact atgagcacca gttocacctt aggotgqago 600 aggagcgaac acagtgggca cagtatagag aatacgcaga gagggaaata qctqatttaa 660 gaagaaggct gtctgaaggt caagaggagg aaaatttaga aaatqaaatq aaaaagqccc 720 aagaggatge tgagaaactt cggtccgttg tgatgccaat qqaaaaqqaa attqcaqctt 780 tgaaggataa actgacagag gctgaagaca aaattaaaga gctggaggcc tcaaaggtta 840 aagaactgaa tcattatctg gaagctgaga aatcttgtag gactgatcta gagatgtatg 900 tagctgtttt gaatactcag aaatctgttc tacaggaaga tgctgagaaa ctgcggaaag 960 1020 atacgtggca gaaggccaat gaccagtttc tggaatctca gcgtttactg atgagagaca 1080 tgcagcgaat ggagattgtg ctaacttcag aacagctccg acaagttgaa gaactgaaga agaaagatca ggaggatgat gaacaacaaa gactcaataa qaqaaaqqat cacaaaaaaq 1200 cagatgttga ggaagaaata aaaataccag tagtgtgtgc tttaactcaa gaagaatctt 1260 cageccagtt atcaaatgaa gaggagcatt tagacagcac ccgtggetca gttcatteet 1320 tagatgcagg cttgctgttg ccatctggag atcctttcag taaatcggac aatgacatgt 1380 ttaaagatgg actcaggaga gcacagtcta cagacagett gggaacctcg gqctcattqc aatccaaagc tttaggctat aactacaaag caaaatctgc tgqaaacctq qacqaqtcaq 1500 attittggacc actggtagga gcagattcag tqtctqaqaa ctttqatact qcatcccttg 1560 ggtcactcca gatgccaagt gggtttatgt taaccaaaga tcaggaaaga gcaatcaagg 1620 cgatgacacc agaacaagaa gagacagcgt ccctcctctc cagcgttacc cagggcatgg 1680 agagtgccta tgtgtcccct agtggttatc gtttagttag tgaaacaqaa tqqaatctct tgcagaaaga ggtacataat gctggaaata aacttqqtag acqttqtqat atqtqttcca 1800 attacqaaaa acagttacaa ggaattcaga ttcaggaggc tgaaacgaga gaccaggtga 1860 aaaaactaca gctgatgcta aggcaagcta atgaccagtt agagaagaca atgaaagata agcaggagct ggaagacttc ataaagcaaa gcagcgaaga ttcgagtcac cagatctctq cactogtoot aagagcccag gcctccgaga tcttacttga agagttacag caggggcttt 2040 cccaggcaaa gagggatgtt caggaacaga tqqcqqtqct qatqcaqtca cqqqaacagq 2100 tttcagaaga gctggtgagg ttacaqaaaq ataatqacaq tctccaggga aagcacagcc 2160 tgcatgtgtc attacagcaa gcagaagact tcatcctccc agacactaca gaggcactgc 2220 gggagttggt attaaaatac cgtgaggaca tcattaatgt gcqqacaqca qcaqaccacq 2280 tagaagaaaa gctgaaggct gagatacttt tcctaaaaga gcagatccaa gcagaacagt 2340 gtttaaaaga aaatcttgaa gaaactctgc aactagaaat agaaaactgc aaggaqqaaa 2400 tagettetat ttetageeta aaagetgaat tagaaagaat aaaagtggaa aaaggacagt tggagtccac attaagagag aagtctcaac agcttgagag tcttcaggaa ataaagatca 2520 gtttggaaga gcagttaaag aaagagactg ctgctaaggc taccgttgaa cagctaatgt ttgaagagaa gaacaaagct cagagattac agacagaatt agatgtcagt gagcaagtcc agagagattt tgtaaagctt tcacagaccc ttcaggtgca gttagagcgg atccggcaag 2700 ctgactcctt ggagagaatc cgggcaattc tgaatgatac taaactgaca qacattaacc 2760 agetteetga gacatgacae ceteatggea ggattetage etgeaetttg ggtttttaae tcatctttag agcaacagta attattattt aactcttaac tgaagaaaga gaagtcacaa caaaaggaag actggagaaa tgcttacttc tagagggaga agactgtgcg gcacaggaaa 2940 cagcaaacag tggggtgatc tgcag 2965

<210> 122 <211> 862 <212> PRT

<213> Homo Sapiens

<400> 122 Met Ala Gln Pro Gly Pro Ala Ser Gln Pro Asp Val Ser Leu Gln Gln Arg Val Ala Glu Leu Glu Lys Ile Asn Ala Glu Phe Leu Arg Ala Gln 20 25 Gln Gln Leu Glu Gln Glu Phe Asn Gln Lys Arg Ala Lys Phe Lys Glu 40 Leu Tyr Leu Ala Lys Glu Glu Asp Leu Lys Arg Gln Asn Ala Val Leu 55 Gln Ala Ala Gln Asp Asp Leu Gly His Leu Arg Thr Gln Leu Trp Glu 70 75 Ala Gln Ala Glu Met Glu Asn Ile Lys Ala Ile Ala Thr Val Ser Glu 90 Asn Thr Lys Gln Glu Ala Ile Asp Glu Val Lys Arg Gln Trp Arg Glu 105 Glu Val Ala Ser Leu Gln Ala Val Met Lys Glu Thr Val Arg Asp Tyr 120 Glu His Gln Phe His Leu Arg Leu Glu Glu Glu Arg Thr Gln Trp Ala 135 140 Gln Tyr Arg Glu Tyr Ala Glu Arg Glu Ile Ala Asp Leu Arg Arg 150 Leu Ser Glu Gly Gln Glu Glu Glu Asn Leu Glu Asn Glu Met Lys Lys 165 170 Ala Gln Glu Asp Ala Glu Lys Leu Arg Ser Val Val Met Pro Met Glu 185 Lys Glu Ile Ala Ala Leu Lys Asp Lys Leu Thr Glu Ala Glu Asp Lys 200 Ile Lys Glu Leu Glu Ala Ser Lys Val Lys Glu Leu Asn His Tyr Leu 215 Glu Ala Glu Lys Ser Cys Arg Thr Asp Leu Glu Met Tyr Val Ala Val 230 235 Leu Asn Thr Gln Lys Ser Val Leu Gln Glu Asp Ala Glu Lys Leu Arg 245 250 Lys Glu Leu His Glu Val Cys His Leu Leu Glu Gln Glu Arg Gln Gln 265 270 His Asn Gln Leu Lys His Thr Trp Gln Lys Ala Asn Asp Gln Phe Leu 280 Glu Ser Gln Arg Leu Leu Met Arg Asp Met Gln Arg Met Glu Ile Val

295 300 Leu Thr Ser Glu Gln Leu Arg Gln Val Glu Glu Leu Lys Lys Lys Asp 310 315 Gln Glu Asp Asp Glu Gln Gln Arg Leu Asn Lys Arg Lys Asp His Lys 330 Lys Ala Asp Val Glu Glu Glu Ile Lys Ile Pro Val Val Cys Ala Leu 345 Thr Gln Glu Glu Ser Ser Ala Gln Leu Ser Asn Glu Glu Glu His Leu 360 Asp Ser Thr Arg Gly Ser Val His Ser Leu Asp Ala Gly Leu Leu Leu 375 380 Pro Ser Gly Asp Pro Phe Ser Lys Ser Asp Asn Asp Met Phe Lys Asp 390 395 Gly Leu Arg Arg Ala Gln Ser Thr Asp Ser Leu Gly Thr Ser Gly Ser 405 410 Leu Gln Ser Lys Ala Leu Gly Tyr Asn Tyr Lys Ala Lys Ser Ala Gly 425 Asn Leu Asp Glu Ser Asp Phe Gly Pro Leu Val Gly Ala Asp Ser Val 440 Ser Glu Asn Phe Asp Thr Ala Ser Leu Gly Ser Leu Gln Met Pro Ser 455 Gly Phe Met Leu Thr Lys Asp Gln Glu Arg Ala Ile Lys Ala Met Thr 470 475 Pro Glu Gln Glu Glu Thr Ala Ser Leu Leu Ser Ser Val Thr Gln Gly 485 490 Met Glu Ser Ala Tyr Val Ser Pro Ser Gly Tyr Arg Leu Val Ser Glu 500 505 Thr Glu Trp Asn Leu Leu Gln Lys Glu Val His Asn Ala Gly Asn Lys 520 Leu Gly Arg Arg Cys Asp Met Cys Ser Asn Tyr Glu Lys Gln Leu Gln 535 540 Gly Ile Gln Ile Gln Glu Ala Glu Thr Arg Asp Gln Val Lys Lys Leu 550 Gln Leu Met Leu Arg Gln Ala Asn Asp Gln Leu Glu Lys Thr Met Lys 570 Asp Lys Gln Glu Leu Glu Asp Phe Ile Lys Gln Ser Ser Glu Asp Ser 580 585 Ser His Gln Ile Ser Ala Leu Val Leu Arg Ala Gln Ala Ser Glu Ile 600 Leu Leu Glu Glu Leu Gln Gln Gly Leu Ser Gln Ala Lys Arg Asp Val 615 Gln Glu Gln Met Ala Val Leu Met Gln Ser Arg Glu Gln Val Ser Glu 630 635 Glu Leu Val Arg Leu Gln Lys Asp Asn Asp Ser Leu Gln Gly Lys His 650 Ser Leu His Val Ser Leu Gln Gln Ala Glu Asp Phe Ile Leu Pro Asp 660 665 Thr Thr Glu Ala Leu Arg Glu Leu Val Leu Lys Tyr Arg Glu Asp Ile 680 Ile Asn Val Arg Thr Ala Ala Asp His Val Glu Glu Lys Leu Lys Ala 695 700 Glu Ile Leu Phe Leu Lys Glu Gln Ile Gln Ala Glu Gln Cys Leu Lys 710 715 Glu Asn Leu Glu Glu Thr Leu Gln Leu Glu Ile Glu Asn Cys Lys Glu 730

Glu Ile Ala Ser Ile Ser Ser Leu Lys Ala Glu Leu Glu Arq Ile Lys 745 Val Glu Lys Gly Gln Leu Glu Ser Thr Leu Arg Glu Lys Ser Gln Gln 760 Leu Glu Ser Leu Gln Glu Ile Lys Ile Ser Leu Glu Glu Gln Leu Lys 775 780 Lys Glu Thr Ala Ala Lys Ala Thr Val Glu Gln Leu Met Phe Glu Glu 790 795 Lys Asn Lys Ala Gln Arg Leu Gln Thr Glu Leu Asp Val Ser Glu Gln 805 810 Val Gln Arg Asp Phe Val Lys Leu Ser Gln Thr Leu Gln Val Gln Leu 820 825 Glu Arg Ile Arg Gln Ala Asp Ser Leu Glu Arg Ile Arg Ala Ile Leu 840 Asn Asp Thr Lys Leu Thr Asp Ile Asn Gln Leu Pro Glu Thr 855

<210> 123

<211> 544

<212> DNA

<213> Homo Sapiens

<400> 123

gggastggcg tggogoaggg atggoacaaa agaaatatt tcaagcaaaa ttgaccagt ttttaaggga agacaggatt Caactttgga aacctccatt tacagatagaa aataaaaaag ttggtttggc attaaaggac cttgctaagc agtacttga cagactagaa tgctgtgaaa atgaagtaga aaagtaata gaagaaatac gttgcaaggc aattgagcgt ggaacaggaa atgacaatta tagaacaacag ggaattgcta caatcgagtg tttttacca ccaagactaa aaaaagatag gaaaaacttg ttggagaccc gattgcacat cactggcaga gaactgaggt ccaaaatagc tgaaaccttt ggacttcaag aanattatat caaaattgtc ataaataaga agcaactacn actagggaaa accettgaag accaaggogt ggctcacaat gtgaaagcga tggtgcttga actaaaacaa tctgaagag acgcagggaa aaacttccag ttagaggaa

60

120

180

240

360

420

480

540

544

<210> 124

<211> 178

<212> PRT

<213> Homo Sapiens

<400> 124

Glu Trp Arg Gly Ala Gly Met Ala Gln Lys Lys Tyr Leu Gln Ala Lys 1 5 10 Leu Thr Gln Phe Leu Arg Glu Asp Arg Ile Gln Leu Trp Lys Pro Pro Tyr Thr Asp Glu Asn Lys Lys Val Gly Leu Ala Leu Lys Asp Leu Ala 40 Lys Gln Tyr Ser Asp Arg Leu Glu Cys Cys Glu Asn Glu Val Glu Lys Val Ile Glu Glu Ile Arg Cys Lys Ala Ile Glu Arg Gly Thr Gly Asn 70 75 Asp Asn Tyr Arg Thr Thr Gly Ile Ala Thr Ile Glu Val Phe Leu Pro 90 Pro Arg Leu Lys Lys Asp Arg Lys Asn Leu Leu Glu Thr Arg Leu His 105 Ile Thr Gly Arg Glu Leu Arg Ser Lys Ile Ala Glu Thr Phe Gly Leu

120 Gln Glu Tyr Ile Lys Ile Val Ile Asn Lys Lys Gln Leu Leu Gly Lys 135 140 Thr Leu Glu Gln Gly Val Ala His Asn Val Lys Ala Met Val Leu Glu 155 Leu Lys Gln Ser Glu Glu Asp Ala Arg Lys Asn Phe Gln Leu Glu Glu 165 170 Glu Glu <210> 125 <211> 1302 <212> DNA <213> Homo Sapiens <400> 125 atggaggtgg tggacccgca gcagctqqqc atqttcacqq aqqqcqaqct qatqtcqqtq 120 aagegggeea ageteategg caagtacetg atgggggace tgetggggga aggetettae 180 ggcaaggtga aggaggtgct ggactcggag acgctgtgca ggagggccgt caagatcctc 240 aagaagaaga agttgcgaag gatccccaac ggggaggcca acgtgaagaa ggaaattcaa 300 ctactgagga ggttacggca caaaaatqtc atccaqctqq tqqatqtqtt atacaacgaa gagaagcaga aaatgtatat ggtgatggag tactgcgtgt gtggcatgca ggaaatgctg 420 gacagegtge eggagaageg ttteecagtg tgecaggeec aegggtaett etgteagetg 480 attgacggcc tggagtacct gcatagccag ggcattgtgc acaaggacat caagccqqqq 540 aacctgctgc tcaccaccgg tggcaccctc aaaatctccg acctgggcqt ggccqaggca 600 ctqcacccgt tcgcggcgga cgacacctgc cggaccagcc agggctcccc ggctttccag 660 ccgcccgaga ttgccaacgg cctggacacc ttctccggct tcaaggtgga catctggtcg 720 gctggggtca ccctctacaa catcaccacg ggtctgtacc ccttcgaagg ggacaacatc 780 tacaagttgt ttgagaacat cgggaagggg agctacgcca tcccgggcga ctgtggcccc 840 cogctototg acctgotgaa agggatgott gagtacgaac oggocaagag gttotocato 900 eggeagatee ggeageacag etggtteegg aagaaacate eteeggetga ageaceagtg 960 cccatcccac cgagcccaga caccaaggac cggtggcgca gcatgactqt qqtqccqtac 1020 ttggaggacc tgcacggcgc ggacgaggac gaggacctct tcgacatcga ggatgacatc 1080 atctacactc aggacttcac ggtgcccgga caggtcccag aagaggaggc cagtcacaat 1140 ggacagogoc ggggcotoco caaggoogtq tqtatqaacq qcacaqaggc qqcqcagctq 1200 agcaccaaat ccaqqqcqqa qqqccqqqcc cccaaccctq cccqcaaqqc ctgctccgcc 1260 agcagcaaga tccgccggct gtcggcctgc aagcagcagt ga 1302 <210> 126 <211> 433 <212> PRT <213> Homo Sapiens <400> 126 Met Glu Val Val Asp Pro Gln Gln Leu Gly Met Phe Thr Glu Glv Glu

Leu Met Ser Val Gly Met Asp Thr Phe Ile His Arg Ile Asp Ser Thr 25 Glu Val Ile Tyr Gln Pro Arg Arg Lys Arg Ala Lys Leu Ile Gly Lys 40 Tyr Leu Met Gly Asp Leu Leu Gly Glu Gly Ser Tyr Gly Lys Val Lys Glu Val Leu Asp Ser Glu Thr Leu Cys Arg Arg Ala Val Lys Ile Leu

```
Lys Lys Lys Leu Arg Arg Ile Pro Asn Gly Glu Ala Asn Val Lys
                                    90
Lys Glu Ile Gln Leu Leu Arg Arg Leu Arg His Lys Asn Val Ile Gln
                               105
Leu Val Asp Val Leu Tyr Asn Glu Glu Lys Gln Lys Met Tyr Met Val
                           120
Met Glu Tyr Cys Val Cys Gly Met Gln Glu Met Leu Asp Ser Val Pro
                       135
Glu Lys Arg Phe Pro Val Cys Gln Ala His Gly Tyr Phe Cys Gln Leu
                                       155
                   150
Ile Asp Gly Leu Glu Tyr Leu His Ser Gln Gly Ile Val His Lys Asp
                                    170
Ile Lys Pro Gly Asn Leu Leu Leu Thr Thr Gly Gly Thr Leu Lys Ile
           180
                               185
Ser Asp Leu Gly Val Ala Glu Ala Leu His Pro Phe Ala Ala Asp Asp
                           200
Thr Cys Arg Thr Ser Gln Gly Ser Pro Ala Phe Gln Pro Pro Glu Ile
                        215
Ala Asn Gly Leu Asp Thr Phe Ser Gly Phe Lys Val Asp Ile Trp Ser
                   230
                                       235
Ala Gly Val Thr Leu Tyr Asn Ile Thr Thr Gly Leu Tyr Pro Phe Glu
               245
                                    250
Gly Asp Asn Ile Tyr Lys Leu Phe Glu Asn Ile Gly Lys Gly Ser Tyr
            260
                                265
Ala Ile Pro Gly Asp Cys Gly Pro Pro Leu Ser Asp Leu Leu Lys Gly
                            280
Met Leu Glu Tyr Glu Pro Ala Lys Arg Phe Ser Ile Arg Gln Ile Arg
                        295
Gln His Ser Trp Phe Arg Lys Lys His Pro Pro Ala Glu Ala Pro Val
                   310
                                       315
Pro Ile Pro Pro Ser Pro Asp Thr Lys Asp Arg Trp Arg Ser Met Thr
               325
                                    330
Val Val Pro Tyr Leu Glu Asp Leu His Gly Ala Asp Glu Asp Glu Asp
            340
                                345
Leu Phe Asp Ile Glu Asp Asp Ile Ile Tyr Thr Gln Asp Phe Thr Val
                           360
Pro Gly Gln Val Pro Glu Glu Glu Ala Ser His Asn Gly Gln Arg Arg
                        375
Gly Leu Pro Lys Ala Val Cys Met Asn Gly Thr Glu Ala Ala Gln Leu
                                        395
Ser Thr Lys Ser Arg Ala Glu Gly Arg Ala Pro Asn Pro Ala Arg Lys
                                    410
Ala Cys Ser Ala Ser Ser Lys Ile Arg Arg Leu Ser Ala Cys Lys Gln
                                425
Gln
```

<210> 127

<211> 1488

<212> DNA

<213> Homo Sapiens

<400> 127

gaggggggg geggtgeegg caagatgget gegeeegga agatgaegtt teeegagaaa ccaageeaca aaaagtacag ggeegeeetg aagaaggaga aacgaaagaa aegteqqeaq

-94-

```
quacttqctc qactqaqaqa ctcaqqactc tcacaqaaqq aqqaaqaqqa qqacactttt
                                                                   180
attqaaqaac aacaactaga agaaqaqaaq ctattqqaaa qaqaqaqca aaqattacat
                                                                   240
gaggagtggt tgctaagaga gcagaaggca caagaagaat tcagaataaa gaaggaaaag
                                                                   300
gaaqaqqqq ctaaaaaaq gcaagaaqaa caaqaqagaa aqttaaagga acaatqqqaa
                                                                   360
420
qaqqaaqctt tqcaqaaqat qctqqatcaq qctqaaaatq aqttqqaaaa tqqtaccaca
                                                                   480
tggcaaaacc cagaaccacc cgtggatttc agagtaatgg agaaggatcg agctaattgt
                                                                   540
cccttctaca gtaaaacagg agcttgcaga tttggagata gatgttcacg taaacataat
                                                                   600
ttcccaacat ccaqtcctac ccttcttatt aaqaqcatqt ttacqacqtt tqqaatqqaq
                                                                   660
cagtgcagga gggatgacta tgaccctgac gcaagcctgg agtacagcga ggaagaaacc
                                                                   720
taccaacagt tcctagactt ctatgaggat gtgttgcccg agttcaagaa cgtggggaaa
                                                                   780
gtgattcagt tcaaggtcag ctgcaatttg gaacctcacc tgaggggcaa tqtatatqtt
                                                                   840
cagtaccagt cggaagaaga atgccaagca gccctttctc tgtttaacgg acqatqqtat
                                                                   900
gcaggacgac agctgcagtg tgaattctgc cccgtgaccc ggtggaaaat ggcgatttgt
                                                                   960
ggtttatttg aaatacaaca atgtccaaga ggaaagcact gcaactttct tcatgtgttc
                                                                  1020
agaaatccca acaatgaatt ctgggaagct aatagagaca tctacttgtc tccaqatcqq
                                                                  1080
actqqctcct cctttqqqaa gaactccqaa aqqaqqqaqa qqatqqqcca ccacqacqac
                                                                  1140
tactacaqca qqctqcqqqq aaqqaqaaac cctaqtccaq accactccta caaaaqaaat
                                                                  1200
ggggaatccg agaggaaaag tagtcgtcac agggggaaga aatctcacaa acgcacatca
                                                                  1260
aagagtoggg agaggcacaa ttcacgaagc agaggaagaa atagggaccg caqcaqqqac
                                                                  1320
egeageeggg geeggggeag eeggageegg ageeggagee ggageegeag qaqeeqeeqe
                                                                  1380
agccggagcc aaagttcctc taggtcccga agtcgtggca ggaggaggtc gggtaataga
                                                                  1440
gacagaactg ttcagagtcc caaatccaaa taaactagtt ttgttctt
                                                                  1488
```

<210> 128 <211> 482 <212> PRT

<213> Homo Sapiens

<400> 128

Met Ala Ala Pro Glu Lys Met Thr Phe Pro Glu Lys Pro Ser His Lys 10 Lys Tyr Arg Ala Ala Leu Lys Lys Glu Lys Arg Lys Lys Arg Arg Gln 25 Glu Leu Ala Arg Leu Arg Asp Ser Gly Leu Ser Gln Lys Glu Glu Glu Glu Asp Thr Phe Ile Glu Glu Gln Gln Leu Glu Glu Glu Lys Leu Leu Glu Arg Glu Arg Gln Arg Leu His Glu Glu Trp Leu Leu Arg Glu Gln 75 Lys Ala Gln Glu Glu Phe Arg Ile Lys Lys Glu Lys Glu Glu Ala Ala 90 Lys Lys Arg Gln Glu Glu Gln Glu Arg Lys Leu Lys Glu Gln Trp Glu 105 Glu Gln Gln Arg Lys Glu Arg Glu Glu Glu Glu Gln Lys Arg Gln Glu 120 Lys Lys Glu Lys Glu Glu Ala Leu Gln Lys Met Leu Asp Gln Ala Glu 135 140 Asn Glu Leu Glu Asn Gly Thr Thr Trp Gln Asn Pro Glu Pro Pro Val 150 155 Asp Phe Arg Val Met Glu Lys Asp Arg Ala Asn Cys Pro Phe Tyr Ser 170 Lys Thr Gly Ala Cys Arg Phe Gly Asp Arg Cys Ser Arg Lys His Asn 185

Phe Pro Thr Ser Ser Pro Thr Leu Leu Ile Lys Ser Met Phe Thr Thr

		195					200					205			
	210					215					220		_	Ala	
225					230					235			_	Phe	240
				245					250					Gln 255	
			260					265					270	Tyr	
		275					280					285		Phe	
	290					295					300			Pro	
Thr 305	Arg	Trp	Lys	Met	Ala 310	Ile	Cys	Gly	Leu	Phe 315	Glu	Ile	Gln	Gln	Cys 320
				325					330			_		Pro 335	
			340					345					350	Asp	-
		355					360					365	_	Met	-
	370					375					380	_		Pro	
385					390					395				Ser	400
				405					410					Arg 415	
			420					425					430	Arg	_
		435					440					445		Ser	_
	450					455					460			Ser	
465		Arg	Arg	Ser	Gly 470	Asn	Arg	Asp	Arg	Thr 475	Val	Gln	Ser	Pro	Lys 480
Ser	Lys														

<210> 129 <211> 1663

<212> DNA <213> Homo Sapiens

<400> 129

aggecetgag ccaacteegg gtgetetget gtgagtgget gaggeeegag atecacacea 60 aggagcagat cotggagcta otggtgotgg agcagttoot gaccatootg coccaggage 120 tecaggeetg ggtgcaggag cattgeeegg agagegetga agaggetgte acteteeteg 180 aagatetgga gegggaaetg gatgageeag gacaceaggt etcaaeteet eeaaaegaae 240 agaaaccggt gtgggagaag atatcctcct caggaactgc aaaggaatcc ccgagcagca 300 tgcagccaca gcccttggag accagtcaca aatacgagtc ttgggggccc ctgtacatcc 360 aagagtetgg tgaggagcag gagttegete aagatecaag aaaggteega gattgeagat 420 tgagtaccca gcacgaggaa tcagcagatg agcagaaagg ttctgaagca gaggggetca 480 aaggggatat aatttctgtg attatcgcca ataaacctga ggccagctta gagaggcagt 540 gcgtaaacct tgaaaatgaa aaaggaacaa aaccccctct tcaagaggca ggctccaaga 600 aaggtagaga atcagttcct actaaaccta ccccaggaga gagacgttat atatgtqctq 660

```
aatgtggcaa ageetttagt aatageteaa ateteaecaa acaeaqqaqa acaeacaetg
                                                                     720
gggagaaacc ttacgtgtgc accaagtgtg ggaaagcttt cagccacagc tcaaacctca
                                                                     780
ccctccacta cagaacacac ttggtggacc ggccctatga ctgtaagtgt ggaaaagctt
                                                                     840
ttgggcagag ctcagacctt cttaaacatc agagaatgca cacagaagag gcgccatatc
agtgcaaaga ttgtggcaag gctttcagcg ggaaaggcag cctcattcgt cactatcgga
                                                                     960
tocacactgg ggagaageet tatcagtgta acqaatgtgg gaagagette agtcagcatg
egggeeteag eteccaceag agaeteeaca eeggagagaa geeatataag tgtaaggagt
gtgggaaagc cttcaaccac agctccaact tcaataaaca ccacagaatc cacaccqqqq
                                                                    1140
aaaagcccta ctggtgtcat cactgtggaa agaccttctg tagcaagtcc aatctttcca
                                                                    1200
aacatcageg agtccacact ggagagggag aagcacegta actttcaage geteetgttg
ttgtcgttgt tttaaacttt agaatctgaa aaccagaaag aagtcttgtc attgcagcag
                                                                    1320
categattee ggtgatagag tttgtateae teaacateag gggatgeetg aggaqtqeqa
getecacage aacatggeag geaggaggte etcagaaggt gteaggaggt tecacacteg
                                                                    1440
ccagttcact ggagcagagt cccttcgcca cacttagggt cccagtaage catgccagca
                                                                    1500
ttaccttttg cgtagttaaa cagacgtgta tccagtctag ttaaggaaga aacattaaga
ttgtttaatt tttaacatat attcaagaat tttaatttgt aaagaattga gccacattga
                                                                    1620
acacaattga atgagattca gaataaactt ataacatctt aaa
                                                                    1663
```

<210> 130 <211> 412 <212> PRT

<213> Homo Sapiens

<400> 130

Ala Leu Ser Gln Leu Arg Val Leu Cys Cys Glu Trp Leu Arg Pro Glu 10 Ile His Thr Lys Glu Gln Ile Leu Glu Leu Leu Val Leu Glu Gln Phe 25 Leu Thr Ile Leu Pro Gln Glu Leu Gln Ala Trp Val Gln Glu His Cys 40 Pro Glu Ser Ala Glu Glu Ala Val Thr Leu Leu Glu Asp Leu Glu Arg 55 Glu Leu Asp Glu Pro Gly His Gln Val Ser Thr Pro Pro Asn Glu Gln 70 75 Lys Pro Val Trp Glu Lys Ile Ser Ser Ser Gly Thr Ala Lys Glu Ser 90 Pro Ser Ser Met Gln Pro Gln Pro Leu Glu Thr Ser His Lys Tyr Glu Ser Trp Gly Pro Leu Tyr Ile Gln Glu Ser Gly Glu Glu Gln Glu Phe 120 Ala Gln Asp Pro Arg Lys Val Arg Asp Cys Arg Leu Ser Thr Gln His 135 Glu Glu Ser Ala Asp Glu Gln Lys Gly Ser Glu Ala Glu Gly Leu Lys 150 155 Gly Asp Ile Ile Ser Val Ile Ile Ala Asn Lys Pro Glu Ala Ser Leu 165 170 Glu Arg Gln Cys Val Asn Leu Glu Asn Glu Lys Gly Thr Lys Pro Pro 185 Leu Gln Glu Ala Gly Ser Lys Lys Gly Arg Glu Ser Val Pro Thr Lys 200 Pro Thr Pro Gly Glu Arg Arg Tyr Ile Cys Ala Glu Cys Gly Lys Ala 215 220 Phe Ser Asn Ser Ser Asn Leu Thr Lys His Arg Arg Thr His Thr Gly 235 Glu Lys Pro Tyr Val Cys Thr Lys Cys Gly Lys Ala Phe Ser His Ser

	245	250		255	
Ser Asn Leu Thr L	Leu His Tyr Arg	Thr His Leu	Val Asp Arg	Pro Tyr	
260		265	270		
Asp Cys Lys Cys G	Gly Lys Ala Phe	Gly Gln Ser	Ser Asp Leu	Leu Lys	
275	280		285		
His Gln Arg Met H	is Thr Glu Glu	Ala Pro Tyr	Gln Cys Lys	Asp Cys	
290	295		300	• •	
Gly Lys Ala Phe S	Ser Gly Lys Gly	Ser Leu Ile	Arg His Tyr	Arg Ile	
305	310	315	-	320	
His Thr Gly Glu L	Lys Pro Tyr Gln	Cys Asn Glu	Cys Gly Lys	Ser Phe	
3	325	330		335	
Ser Gln His Ala G	Sly Leu Ser Ser	His Gln Arg	Leu His Thr	Glv Glu	
340		345	350		
Lys Pro Tyr Lys C	Cys Lys Glu Cys	Glv Lvs Ala	Phe Asn His	Ser Ser	
355	360		365		
Asn Phe Asn Lys H	His His Arg Ile	His Thr Glv	Glu Lvs Pro	Tvr Trn	
370	375		380	-7	
Cys His His Cys G	Sly Lys Thr Phe	Cvs Ser Lvs	Ser Asn Leu	Ser Lvs	
385	390	395		400	
His Gln Arg Val H	His Thr Gly Glu	Gly Glu Ala	Pro		
4	105	410			
<210> 131					
<211> 724					
<212> DNA					
<213> Homo	Sapiens				
<400> 131					
ggagaatgaa aagcag	gaaag tggcagagct	gtattctatc	cataactctg	gagacaaatc 6	0
tgatattcag gaccto	ctgg agagtgtcag	gctggacaaa	gaaaaagcag	agactttggc 12	0
tagtagcttg caggaa	agatc tggctcatac	ccgaaatgat	gccaatcgat	tacaggatge 18	0
cattgctaag gtagag	gatg aataccgage	cttccaagaa	gaagctaaga	aacaaattga 24	0
agatttgaat atgacg	gttag aaaaattaag	atcagacctg	gatgaaaaag	aaacagaaag 30	0
gagtgacatg aaagaa	acca tetttgaact	tgaagatgaa	gtagaacaac	atcgtgctgt 36	
gaaacttcat gacaac					0
ccaaaagcac gacatg	gaaa gagaaataaa	gacactccac	agaagacttc	gggaagaatc 48	
tgcggaatgg cggcag	gtttc aggctgatct	ccagactgca	gtagtcattg	caaatgacat 54	
taaatctgaa gcccaa	agagg agattggtga	tctaaagcgc	cgggtacatq	aggeteaaga 60	
aaaaaatgag aaacto	cacaa aagaattgga	ggaaataagt	ccgccaagcc	agaagangac 66	
gangccggta ttccar					
ggaa			55	72	
				7.2	_
<210> 132					

<211> 218

<212> PRT

<213> Homo Sapiens

<400> 132

Glu Asn Glu Lys Gln Lys Val Ala Glu Leu Tyr Ser Ile His Asn Ser 5 10 Gly Asp Lys Ser Asp Ile Gln Asp Leu Leu Glu Ser Val Arg Leu Asp 25 Lys Glu Lys Ala Glu Thr Leu Ala Ser Ser Leu Gln Glu Asp Leu Ala

40

His Thr Arg Asn Asp Ala Asn Arg Leu Gln Asp Ala Ile Ala Lys Val

55 60 Glu Asp Glu Tyr Arg Ala Phe Gln Glu Glu Ala Lys Lys Gln Ile Glu 70 75 Asp Leu Asn Met Thr Leu Glu Lys Leu Arg Ser Asp Leu Asp Glu Lys Glu Thr Glu Arg Ser Asp Met Lys Glu Thr Ile Phe Glu Leu Glu Asp 105 Glu Val Glu Gln His Arg Ala Val Lys Leu His Asp Asn Leu Ile Ile 120 125 Ser Asp Leu Glu Asn Thr Val Lys Lys Leu Gln Asp Gln Lys His Asp 135 140 Met Glu Arg Glu Ile Lys Thr Leu His Arg Arg Leu Arg Glu Glu Ser 155 150 Ala Glu Trp Arg Gln Phe Gln Ala Asp Leu Gln Thr Ala Val Val Ile 170 Ala Asn Asp Ile Lys Ser Glu Ala Gln Glu Glu Ile Gly Asp Leu Lys 180 185 Arg Arg Val His Glu Ala Gln Glu Lys Asn Glu Lys Leu Thr Lys Glu 200 205 Leu Glu Glu Ile Ser Pro Pro Ser Gln Lys 210 215 <210> 133 <211> 719 <212> DNA <213> Homo Sapiens <400> 133 gagaactaca gagctgggtg cggggccaac ggccagaaag tggcgaggag gcagtgacgc tggtggaggg tttgcagaaa caacccagga gaccaaggcg gtgactgtcc atgttcacgg ccaggaagtc ctgtcagagg agacggtgca tttaqqagcq qaqcctqaqt cacctaatqa 180 getgeaggat cetgtgeaaa getegaceee egageagtet cetgaggaaa ceacacagag cocagatoty ggggcaccgg cagagcagcg tocacaccag gaagaggage tocagacct 300 gcaggagagc gaggtcccag tgcccgagga cccagacctt cctgcagaga ggagctctgg agactcagag atggttgctc ttcttactgc tctgtcacag ggactggtaa cgttcaagga 420 tgtggccgta tgcttttccc aggaccagtg gagtgatctg gacccaacac agaaagagtt 480 ctatggagaa tatgtcttgg aagaagactg tggaattgtt gtctctctgt catttccaat 540 ccccagacct gatgagatct cccaggttag agaggaagag cccttgggtc ccagatatcc 600 aagagcctna ggagactcaa gagccagaaa teetgagttt taectacaca ggagatagga 660 gtnaagatga aggaaaatgt ctggagccag gaagaatctg agtttggagg atataccca 719 <210> 134 <211> 217 <212> PRT <213> Homo Sapiens <400> 134 Arg Thr Thr Glu Leu Gly Ala Gly Pro Thr Ala Arg Lys Trp Arg Gly 7 10 Gly Ser Asp Ala Gly Gly Gly Phe Ala Glu Thr Thr Gln Glu Thr Lys 20 Ala Val Thr Val His Val His Gly Gln Glu Val Leu Ser Glu Glu Thr 40 Val His Leu Gly Ala Glu Pro Glu Ser Pro Asn Glu Leu Gln Asp Pro 55

```
Val Gln Ser Ser Thr Pro Glu Gln Ser Pro Glu Glu Thr Thr Gln Ser
                    70
Pro Asp Leu Gly Ala Pro Ala Glu Gln Arg Pro His Gln Glu Glu Glu
                                    90
Leu Gln Thr Leu Gln Glu Ser Glu Val Pro Val Pro Glu Asp Pro Asp
            100
                                105
Leu Pro Ala Glu Arg Ser Ser Gly Asp Ser Glu Met Val Ala Leu Leu
                            120
                                                125
Thr Ala Leu Ser Gln Gly Leu Val Thr Phe Lys Asp Val Ala Val Cys
                                            140
Phe Ser Gln Asp Gln Trp Ser Asp Leu Asp Pro Thr Gln Lys Glu Phe
145
                    150
Tyr Gly Glu Tyr Val Leu Glu Glu Asp Cys Gly Ile Val Val Ser Leu
                165
                                    170
Ser Phe Pro Ile Pro Arg Pro Asp Glu Ile Ser Gln Val Arg Glu Glu
                                185
Glu Pro Leu Gly Pro Arg Tyr Pro Arg Ala Gly Asp Ser Arg Ala Arg
                            200
Asn Pro Glu Phe Tyr Leu His Arg Arg
    210
                        215
     <210> 135
      <211> 1027
     <212> DNA
      <213> Homo Sapiens
      <400> 135
gegagggega gggegaggeg gtgetcatgg aggaggacet qatecaqeaq aqeetqqacq
actacgacgc cggcaggtac agcccgcqqc tgctcacgqc qcacqaqctq ccactqqacq
                                                                      120
eqeacqtqct ggaaccggat gaggacctgc agegcetgca getetegege cageagetec
                                                                      180
aggtcacggg agacgccagc gagaqcqccq aqqacatett ettecqqcqq qecaaqqaqq
                                                                       240
gcatgggcca ggacgaggcg cagttcagcg tggagatgcc actcaccggc aaggcctacc
                                                                      300
tgtgggccga caagtaccgg ccacgcaagc cgcgcttctt caaccgcgtg cacacgggct
                                                                      360
togagtggaa caagtacaac cagacgcact acgactttga caacccaccg cccaagatcg
                                                                      420
tgcagggata caagttcaac atcttctacc ccgacctcat cgacaagcgc tccacgcccg
agtactteet ggaggeetge geegacaaca aggatttege eateetgege tteaegeggg
                                                                      540
qccqcctacg aggacatcgc tttcaagatc gtcaaccgcg agtgggaata ctngcaccgc
                                                                      600
caeggettee getgecagtt tgccaaegge attttccane tgngetttea ettcaagege
                                                                      660
tneegetate ggeggtgaeg geeetgggga aeggeaggee aggagggeeg agggeacac
                                                                      720
gggtgccaca gcccaggtcg gagtggccca gccggcaggc ttqtttttca gcatccqacq
                                                                      780
ggaacatctc caacagaagc aaaacggaaa gtqcctcccq qacccccaqa qqqccaccca
                                                                      840
acctcaccag tcaccagece cagaccacce acagececte ecagacacce egectcatet
                                                                      900
ggaaatagtt ccgtttgttt ctctaaaaag acttgtaggt gggaaaaaaa atcttttggt
                                                                      960
ctcatggaat tggcctattg gcaagatcgc atgtttttt aataaacgtt gtattttaga
```

<210> 136 <211> 299

ataaaaa

<212> PRT

<213> Homo Sapiens

<400> 136

Glu Gly Glu Gly Glu Ala Val Leu Met Glu Glu Asp Leu Ile Gln Gln Ser Leu Asp Asp Tyr Asp Ala Gly Arg Tyr Ser Pro Arg Leu Leu Thr 1020

60

120

180

240

360

420

480

540

600

660

720

766

```
25
Ala His Glu Leu Pro Leu Asp Ala His Val Leu Glu Pro Asp Glu Asp
                            40
Leu Gln Arg Leu Gln Leu Ser Arg Gln Gln Leu Gln Val Thr Gly Asp
Ala Ser Glu Ser Ala Glu Asp Ile Phe Phe Arg Arg Ala Lys Glu Gly
                                        75
Met Gly Gln Asp Glu Ala Gln Phe Ser Val Glu Met Pro Leu Thr Gly
                85
                                    90
Lys Ala Tyr Leu Trp Ala Asp Lys Tyr Arg Pro Arg Lys Pro Arg Phe
            100
                                1.05
Phe Asn Arg Val His Thr Gly Phe Glu Trp Asn Lys Tyr Asn Gln Thr
                            120
                                                125
His Tyr Asp Phe Asp Asn Pro Pro Pro Lys Ile Val Gln Gly Tyr Lys
                        135
Phe Asn Ile Phe Tyr Pro Asp Leu Ile Asp Lys Arg Ser Thr Pro Glu
                    150
                                        155
Tyr Phe Leu Glu Ala Cys Ala Asp Asn Lys Asp Phe Ala Ile Leu Arg
                165
                                    170
Phe Thr Arg Gly Arg Leu Arg Gly His Arg Phe Gln Asp Arg Gln Pro
            180
                                185
Arg Val Gly Ile Leu Ala Pro Pro Arg Leu Pro Leu Pro Val Cys Gln
                            200
Arg His Phe Pro Leu Ser Leu Gln Ala Leu Pro Leu Ser Ala Val Thr
Ala Leu Gly Asn Gly Arg Pro Gly Gly Pro Arg Ala Thr Arg Val Pro
                    230
                                        235
Gln Pro Arg Ser Glu Trp Pro Ser Arg Gln Ala Cys Phe Ser Ala Ser
                245
                                    250
Asp Gly Asn Ile Ser Asn Arg Ser Lys Thr Glu Ser Ala Ser Arg Thr
                                265
Pro Arg Gly Pro Pro Asn Leu Thr Ser His Gln Pro Gln Thr Thr His
                            280
Ser Pro Ser Gln Thr Pro Arg Leu Ile Trp Lys
                        295
      <210> 137
      <211> 766
```

<212> DNA

<213> Homo Sapiens

<400> 137

```
caaaggttta cacagtaaac aatgtgaatg tgatcaccaa aatacgcaca gaacatctga
ccgaggagga aaaaaagaga tataaagaca ggaacccgct ggaatctttg ctgggaactg
tggaacacca atttggtgca caaggggacc tcaccacgga atgtgctact gcaaacaacc
ccacagccat cacgcctgat gagtacttca atgaagagtt tgatctgaaa gacagggaca
ttggaaggcc gaaagagctg acgattagaa cacagaagtt taaagcaatg ttgtggatgt
gtgaagagtt teceetetet etggtggage aggteattee cateattgae etaatggete
gaacgagtge teattitgea agactgagag attteateaa attggaatte ceacetggat
tteetgteaa aatagettee cacateacaa aetttgaggt tgateaatet gtgtttgaaa
ttcccgaatc ttactatgtt caagacaatg gcagaaatgt gcatttgcaa gatgaagatt
acgagataat gcagtttgcc atccagcaaa gtctgctgga gtccagcagg agccaggaac
tttcaggacc agcttcgaat ggagggatca gccagacaaa cacctatgac gcccagtatg
agagggccat neaggagage ettetaceag cacagaaage etgtgccccc agegeceetg
agcgagacna gccgttttga taatggactt gcagctaagc catgga
```

<210> 138 <211> 243 <212> PRT <213> Homo Sapiens

<400> 138

Lys Val Tyr Thr Val Asn Asn Val Asn Val Ile Thr Lys Ile Arg Thr 10 Glu His Leu Thr Glu Glu Glu Lys Lys Arg Tyr Lys Asp Arg Asn Pro Leu Glu Ser Leu Leu Gly Thr Val Glu His Gln Phe Gly Ala Gln Gly 40 Asp Leu Thr Thr Glu Cys Ala Thr Ala Asn Asn Pro Thr Ala Ile Thr 55 Pro Asp Glu Tyr Phe Asn Glu Glu Phe Asp Leu Lys Asp Arg Asp Ile 70 Gly Arg Pro Lys Glu Leu Thr Ile Arg Thr Gln Lys Phe Lys Ala Met 90 Leu Trp Met Cys Glu Glu Phe Pro Leu Ser Leu Val Glu Gln Val Ile 105 Pro Ile Ile Asp Leu Met Ala Arg Thr Ser Ala His Phe Ala Arg Leu 120 Arg Asp Phe Ile Lys Leu Glu Phe Pro Pro Gly Phe Pro Val Lys Ile 135 140 Ala Ser His Ile Thr Asn Phe Glu Val Asp Gln Ser Val Phe Glu Ile 150 155 Pro Glu Ser Tyr Tyr Val Gln Asp Asn Gly Arg Asn Val His Leu Gln 165 170 Asp Glu Asp Tyr Glu Ile Met Gln Phe Ala Ile Gln Gln Ser Leu Leu 180 185 Glu Ser Ser Arg Ser Gln Glu Leu Ser Gly Pro Ala Ser Asn Gly Gly 200 Ile Ser Gln Thr Asn Thr Tyr Asp Ala Gln Tyr Glu Arg Ala Gln Glu 215 220 Ser Leu Leu Pro Ala Gln Lys Ala Cys Ala Pro Ser Ala Pro Glu Arg 225 230 235

<210> 139 <211> 3060 <212> DNA

Asp Pro Phe

<213> Homo Sapiens

<400> 139

ccgggcggga gtgcggcgag agccggctgg ctgagcttag cgtccgagga ggcggcggcg 60 gcggcggcgg cagcggcggc ggcggggctg tggggcggtg cggaagcgag aggcgaggag 120 egegegggee gtggeeagag tetggeggeg geetggegga geggagagea gegeeegege ctegeegtge ggaggagece egcacacaat ageggegege geageeegeg ecetteeece eggegegece egeceegege geegagegee eegeteegee teacetgeea eeagggagtg 300 ggcgggcatt gttcgccgcc gccgccgccg cgcggggcca tgggggccgc ccggcgcccg 360 gggccgggcc tggcgaggcc gccgcgccgc cgctgagacg ggccccgcgc gcagcccggc 420 ggcgcaggta aggccggccg cgccatggtg gacccggtgg gcttcgcgga ggcgtggaag 480 gegeagttee eggaeteaga geeceegege atggagetge geteagtggg egacategag 540 caggagctgg agcgctgcaa ggcctccatt cggcgcctgg agcaggaggt gaaccaggag 600

WO 99/04265 PCT/US98/14679

```
egetteegea tgatetacet geagacgttg etggeeaagg aaaagaagag etatgacegg
                                                                     660
caqcgatqqq qcttccqqcq cqcqqcqcaq qcccccqacq qcqcctccqa qccccqaqcq
                                                                     720
teegegtege geeegeagee agegeeegee gaeggageeg accegeegee egeegaggag
                                                                     780
cccgaggccc ggcccgacgg cgagggttet ccgggtaagg ccaggcccgg gaccgcccgc
                                                                     840
aggcccgggg cagccgcgtc gggggaacgg gacgaccggg gaccccccgc cagcgtggcq
                                                                     900
gegeteaggt ccaacttega geggateege aagggeeatg geeageeegg ggeggaegee
                                                                      960
gagaageeet tetaegtgaa egtegagttt caccaegage geggeetggt gaaggteaae
                                                                    1020
gacaaagagg tgtcggaccg catcagctcc ctgggcagcc aggccatgca gatggagcgc
                                                                    1080
aaaaagtccc agcacggcgc gggctcgagc gtgggggatg catccaggcc cccttaccgq
ggacgeteet eggagageag etgeggegte gacggegaet acqaggaege egagttgaae
                                                                    1200
ccccqcttcc tqaaqqacaa cctqatcqac qccaatqqcq qtaqcaqqcc cccttqqcqq
                                                                    1260
cccctqqaqt accaqcccta ccaqaqcatc tacqtcqqqq qcatqatqqa aqqqqaqqqc
                                                                    1320
aaqqqcccgc tectqcgcag ccagagcaec tetgagcagg agaagcgeet tacetggeec
                                                                    1380
egeaggteet acteceeeg gagttttgag gattgeggag geggetatae eeeggaetge
                                                                    1440
agetecaatq agaaceteac etecagegaq qaggaettet cetetqqeca qtecageeqe
gtgtccccaa gccccaccac ctaccgcatg ttccgggaca aaagccgctc tccctcgcag
                                                                    1560
aactcgcaac agtccttcga cagcagcagt cccccacgc cgcagtgcca taagcqqcac
                                                                    1620
eggeactgee eggttgtegt gteegaggee accategtgg gegteegeaa gaecqqcaq
atctggccca acgatggcga gggcgccttc catggagacg cagatggctc gttcggaaca
                                                                    1740
ccacctggat acggctgcgc tgcagaccgg gcagaggagc agcgccggca ccaagatggg
                                                                    1800
ctgccctaca ttgatgactc gccctcctca tcgccccacc tcagcagcaa gggcaggggc
                                                                    1860
agcogggatg cgctggtctc gggagccctg gagtccacta aagcqaqtqa qctqqacttq
                                                                    1920
gaaaagggct tggagatgag aaaatgggtc ctgtcgggaa tcctggctag cgaggagact
                                                                     1980
tacctgagec acctggaggc actqctqctq cccatqaaqc ctttqaaaqc cqctqccacc
                                                                     2040
acctctcagc cggtgctgac gagtcagcag atcgagacca tcttcttcaa agtgcctgag
                                                                     2100
ctctacgaga tccacaagga gttctatgat gggctcttcc cccgcgtgca gcagtggage
                                                                     2160
caccagcagc gggtgggcga cctettccag aagetggcca gccagctggg tgtgtaccqq
                                                                     2220
gccttcgtgg acaactacgg agttgccatg gaaatggctg agaagtgctg tcaqqccaat
                                                                     2280
gctcagtttg cagaaatctc cgagaacctg agagccagaa gcaacaaaga tgccaaggat
                                                                     2340
ccaacgacca agaactctct ggaaactctq ctctacaaqc ctqtqqaccq tqtqacqaqq
                                                                     2400
ageacgetgg tectecatga ettqetqaaq cacacteetq ecaqeeacee tqaecacee
                                                                     2460
ttqctqcaqq acqccctccq catctcacaq aacttcctqt ccaqcatcaa tqaqqaqatc
                                                                     2520
acaccccgac ggcagtccat gacggtgaag aagggagagc accggcagct gctgaaggac
                                                                     2580
agetteatgg tggagetggt ggagggggee egeaagetge geeaegtett eetgtteaee
                                                                     2640
gagetgette tetgeaceaa geteaagaag cagageggag geaaaaegea geagtatgae
                                                                     2700
tgcaaatggt acattccgct cacggatctc agcttccaga tggtggatga actggaggca
gtgcccaaca tccccctggt gcccgatgag gagctggacg ctttgaagat caaqatctcc
                                                                     2820
cagatcaaga gtgacatcca gagagagaag agggcgaaca agggcagcaa ggctacggag
                                                                     2880
aggetqaaqa aqaaqetqte qqaqeaqqaq teactqetqe tqettatqte teccaqeatq
                                                                     2940
qccttcaqqq tqcacaqccq caacqqcaaq aqttacacqt tcctqatctc ctctqactat
                                                                     3000
```

Met Val Asp Pro Val Gly Phe Ala Glu Ala Trp Lys Ala Gln Phe Pro 1 5 10 15
Asp Ser Glu Pro Pro Arg Met Glu Leu Arg Ser Val Gly Asp Ile Glu 20 25 30

gagcgtgcag agtggaggga gaacatccgg gagcagcaga agaagtgttt cagaagcttc

3060

Glu Glu Leu Glu Arg Cys Lys Ala Ser Ile Arg Arg Leu Glu Glu Glu Glu 35 $$40\$

Val Asn Glu Arg Phe Arg Met Ile Tyr Leu Gln Thr Leu Leu Ala

<210> 140 <211> 872 <212> PRT

<213> Homo Sapiens

<400> 140

55 Lys Glu Lys Lys Ser Tyr Asp Arg Gln Arg Trp Gly Phe Arg Arg Ala 70 75 Ala Gln Ala Pro Asp Gly Ala Ser Glu Pro Arg Ala Ser Ala Ser Arg 90 Pro Gln Pro Ala Pro Ala Asp Gly Ala Asp Pro Pro Pro Ala Glu Glu 105 Pro Glu Ala Arg Pro Asp Gly Glu Gly Ser Pro Gly Lys Ala Arg Pro 120 125 Gly Thr Ala Arg Arg Pro Gly Ala Ala Ala Ser Gly Glu Arg Asp Asp 135 140 Arg Gly Pro Pro Ala Ser Val Ala Ala Leu Arg Ser Asn Phe Glu Arg 150 155 Ile Arg Lys Gly His Gly Gln Pro Gly Ala Asp Ala Glu Lys Pro Phe 170 Tyr Val Asn Val Glu Phe His His Glu Arg Gly Leu Val Lys Val Asn 185 Asp Lys Glu Val Ser Asp Arg Ile Ser Ser Leu Gly Ser Gln Ala Met 200 Gln Met Glu Arg Lys Lys Ser Gln His Gly Ala Gly Ser Ser Val Gly 215 220 Asp Ala Ser Arg Pro Pro Tyr Arg Gly Arg Ser Ser Glu Ser Ser Cys 230 235 Gly Val Asp Gly Asp Tyr Glu Asp Ala Glu Leu Asn Pro Arg Phe Leu 245 250 Lys Asp Asn Leu Ile Asp Ala Asn Gly Gly Ser Arg Pro Pro Trp Pro 265 Pro Leu Glu Tyr Gln Pro Tyr Gln Ser Ile Tyr Val Gly Gly Met Met 280 Glu Gly Glu Gly Lys Gly Pro Leu Leu Arg Ser Gln Ser Thr Ser Glu 295 300 Gln Glu Lys Arg Leu Thr Trp Pro Arg Arg Ser Tyr Ser Pro Arg Ser 310 315 Phe Glu Asp Cys Gly Gly Gly Tyr Thr Pro Asp Cys Ser Ser Asn Glu 330 Asn Leu Thr Ser Ser Glu Glu Asp Phe Ser Ser Gly Gln Ser Ser Arg 340 345 Val Ser Pro Ser Pro Thr Thr Tyr Arg Met Phe Arg Asp Lys Ser Arg 360 365 Ser Pro Ser Gln Asn Ser Gln Gln Ser Phe Asp Ser Ser Ser Pro Pro 375 380 Thr Pro Gln Cys His Lys Arg His Arg His Cys Pro Val Val Val Ser 390 395 Glu Ala Thr Ile Val Gly Val Arg Lys Thr Gly Gln Ile Trp Pro Asn 410 Asp Gly Glu Gly Ala Phe His Gly Asp Ala Asp Gly Ser Phe Gly Thr Pro Pro Gly Tyr Gly Cys Ala Ala Asp Arg Ala Glu Glu Gln Arg Arg 440 His Gln Asp Gly Leu Pro Tyr Ile Asp Asp Ser Pro Ser Ser Pro 455 460 His Leu Ser Ser Lys Gly Arg Gly Ser Arg Asp Ala Leu Val Ser Gly 470 475 Ala Leu Glu Ser Thr Lys Ala Ser Glu Leu Asp Leu Glu Lys Gly Leu 490

```
Glu Met Arg Lys Trp Val Leu Ser Gly Ile Leu Ala Ser Glu Glu Thr
           500
                              505
Tyr Leu Ser His Leu Glu Ala Leu Leu Leu Pro Met Lys Pro Leu Lys
                         520
Ala Ala Thr Thr Ser Gln Pro Val Leu Thr Ser Gln Gln Ile Glu
                      535
                                         540
Thr Ile Phe Phe Lys Val Pro Glu Leu Tyr Glu Ile His Lys Glu Phe
                 550
                                    555
Tyr Asp Gly Leu Phe Pro Arg Val Gln Gln Trp Ser His Gln Gln Arg
              565
                                570
Val Gly Asp Leu Phe Gln Lys Leu Ala Ser Gln Leu Gly Val Tyr Arg
           580
                             585
Ala Phe Val Asp Asn Tyr Gly Val Ala Met Glu Met Ala Glu Lys Cys
                          600
Cys Gln Ala Asn Ala Gln Phe Ala Glu Ile Ser Glu Asn Leu Arg Ala
                     615
Arg Ser Asn Lys Asp Ala Lys Asp Pro Thr Thr Lys Asn Ser Leu Glu
                  630
                                     635
Thr Leu Leu Tyr Lys Pro Val Asp Arg Val Thr Arg Ser Thr Leu Val
                                  650
Leu His Asp Leu Leu Lys His Thr Pro Ala Ser His Pro Asp His Pro
           660
                             665
Leu Leu Gln Asp Ala Leu Arg Ile Ser Gln Asn Phe Leu Ser Ser Ile
                          680
                                             685
Asn Glu Glu Ile Thr Pro Arg Arg Gln Ser Met Thr Val Lys Lys Gly
                      695
                                          700
Glu His Arg Gln Leu Leu Lys Asp Ser Phe Met Val Glu Leu Val Glu
                   710
                                      715
Gly Ala Arg Lys Leu Arg His Val Phe Leu Phe Thr Glu Leu Leu Leu
               725
                                  730
Cys Thr Lys Leu Lys Lys Gln Ser Gly Gly Lys Thr Gln Gln Tyr Asp
                              745
Cys Lys Trp Tyr Ile Pro Leu Thr Asp Leu Ser Phe Gln Met Val Asp
                        760
Glu Leu Glu Ala Val Pro Asn Ile Pro Leu Val Pro Asp Glu Glu Leu
                      775
                                         780
Asp Ala Leu Lys Ile Lys Ile Ser Gln Ile Lys Ser Asp Ile Gln Arq
                   790
                                      795
Glu Lys Arg Ala Asn Lys Gly Ser Lys Ala Thr Glu Arg Leu Lys Lys
               805
                                 810
Lys Leu Ser Glu Gln Glu Ser Leu Leu Leu Met Ser Pro Ser Met
                           825
Ala Phe Arg Val His Ser Arg Asn Gly Lys Ser Tyr Thr Phe Leu Ile
                          840
Ser Ser Asp Tyr Glu Arg Ala Glu Trp Arg Glu Asn Ile Arg Glu Gln
                      855
Gln Lys Lys Cys Phe Arg Ser Phe
                   870
```

<210> 141

<211> 691

<212> DNA

<213> Homo Sapiens

<400> 141

175

gacccctcac	actcacctag	ccaccatgga	catcgccatc	caccacccct	ggatcegeeg	60
ccccttcttt	cctttccact	ccccagccg	cctctttgac	cagttcttcg	gagagcacct	120
gttggagtct	gatettttee	cgacgtctac	ttccctgagt	cccttctacc	ttcggccacc	180
ctccttcctg	cgggcaccca	gctggtttga	cactggactc	tcagagatgc	gcctggagaa	240
ggacaggttc	tctgtcaacc	tggatgtgaa	gcacttctcc	ccagaggaac	tcaaagttaa	300
ggtgttggga	gatgtgattg	aggtgcatgg	aaaacatgaa	gagcgccagg	atgaacatgg	360
tttcatctcc	agggagttcc	acaggaaata	ccggatccca	gctgatgtag	acceteteae	420
cattacttca	tccctgtcat	ctgatggggt	cctcactgtg	aatggaccaa	ggaaacaggt	480
ctctggccct	gagcgcacca	ttcccatcac	ccgtgaagag	aagcctgctg	tcaccgcagc	540
ccccaagaaa	tagatgccct	ttcttgaatt	gcattttta	aaacaagaaa	gtttccccac	600
cagtgaatga	aagtcttgtg	actagtgctg	aagcttatta	atgctaaggg	caggcccaaa	660
ttatcaagct	aataaaatat	cattcagcaa	C			691

<210 > 142 <211 > 175

<212> PRT

<213> Homo Sapiens

<400> 142

Met Asp Ile Ala Ile His His Pro Trp Ile Arg Arg Pro Phe Phe Pro 1.0 Phe His Ser Pro Ser Arg Leu Phe Asp Gln Phe Phe Glv Glu His Leu 20 25 Leu Glu Ser Asp Leu Phe Pro Thr Ser Thr Ser Leu Ser Pro Phe Tyr 35 40 45 Leu Arg Pro Pro Ser Phe Leu Arg Ala Pro Ser Trp Phe Asp Thr Gly 55 Leu Ser Glu Met Arg Leu Glu Lys Asp Arg Phe Ser Val Asn Leu Asp 75 Val Lys His Phe Ser Pro Glu Glu Leu Lys Val Lys Val Leu Gly Asp 90 Val Ile Glu Val His Gly Lys His Glu Glu Arg Gln Asp Glu His Gly 105 Phe Ile Ser Arg Glu Phe His Arg Lys Tyr Arg Ile Pro Ala Asp Val 120 Asp Pro Leu Thr Ile Thr Ser Ser Leu Ser Ser Asp Gly Val Leu Thr 135 140 Val Asn Gly Pro Arg Lys Gln Val Ser Gly Pro Glu Arg Thr Ile Pro 150 155

Ile Thr Arg Glu Glu Lys Pro Ala Val Thr Ala Ala Pro Lys Lys

<210> 143

<211> 1300

<212> DNA

<213> Homo Sapiens

165

<400> 143

atotgotggg aatttottgg gitgacagot ottggatoo tatittgaac agiggtagig 60 tootggatta ottitteagaa agaagtaato ottittatga cagaacaatg aataatgaag 120 tootggataaaat gocagagota acattagaac acitgaatoa gaiggitgga atogagtooc 240 tootitigga tigotaaaga cocatotiit toatcattog gaagcaacag oggoagtooc 240 otgocoaagi tatocoacaa gotgattact atatoatigo tigogagtact tatoagoac 300 cagacitggg atoagitaat aacotcaaga tooticaga agotagotgat attoagoac 300 ottitigatga agotatgica tactgogat atoacocagacitgg atoagitaat aacotcaga tooticoocagacitgg acaagitgata tactgogat atoacocagacitgga agotatgica tactgogat atoacocacagacitgga agotatgica tactgogat atoacocacagacitgga agotatgica tactgogat atoacocacagacitgga agotagogat agotagogat acocacagacitga agotagogat acocacagacitga agotagogat acocacagacitga atoacocacagacitga acocacagacitga acocacacagacitga acocacagacitga acocacagacitga acocacagacitga acocacacagacitga acocacacagacitg

```
tcaaagatca tgaagagcaa gataaagtca qacctaaagc caaaaggaaa gaagaaccaa
                                                                      480
getetatttt teagagacaa egtgtggatg etttaetttt agaeeteaga caaaaattte
cacccaaatt tgtgcagcta aagcctggag aaaagcctgt tcaagtggat caaacaaaga
                                                                      600
aagaggcaga acctatacca gaaactgtaa aacctgagga gaaggagacc cccnnagaat
                                                                      660
gtacaaccag accgggagtg ctaaaggccc ccctgaaaaa cggatgagac ttcagtgagt
actggacaaa agagaagcct qqaaqactcc tcatqctaqt tatcatacct cagtactqtq
                                                                      780
getettgage titgaagtae titatigtaa eettettati tgtatggaat gegettatit
                                                                      840
tttgaaagga tattaggccg gatgtggtgg ctcacgcctg taatcccagc actttgggag
                                                                      900
gccatggcgg gtggatcact tgaggtcaga agttcaagac cagcctgacc aatatggtga
                                                                      960
aaccccgtct ctactaaaaa tacaaaaatt agccgggcgt ggtggcgggc gcccgtagtc
                                                                     1020
ccagctactc gggaggctga gacaggagac ttgcttgaac ccgggaggtg gaggttgccc
                                                                     1080
tgagctgatt atcatgctgt tgcactccag cttgggcgac agagcgagac tttqtctcaa
                                                                     1140
aaaagaagaa aagatattac tcccatcatg atttcttgtg aatatttgtt atatgtcttc
                                                                     1200
tgtaaccttt cctctcccgg acttgagcaa cctacacact cacatgttta ctggtagata
                                                                     1260
tgtttaaaag caaaataaag gtatttgtat atattgaaaa
                                                                     1300
```

<210> 144 <211> 233 <212> PRT

<213> Homo Sapiens

<400> 144

Leu Leu Gly Ile Ser Trp Val Asp Ser Ser Trp Ile Pro Ile Leu Asn 10 Ser Gly Ser Val Leu Asp Tyr Phe Ser Glu Arg Ser Asn Pro Phe Tyr 25 Asp Arg Thr Cys Asn Asn Glu Val Val Lys Met Gln Arg Leu Thr Leu 40 Glu His Leu Asn Gln Met Val Gly Ile Glu Tyr Ile Leu Leu His Ala 55 Gin Glu Pro Ile Leu Phe Ile Ile Arg Lys Gln Gln Arg Gln Ser Pro 70 Ala Gln Val Ile Pro Leu Ala Asp Tyr Tyr Ile Ile Ala Gly Val Ile 90 Tyr Gln Ala Pro Asp Leu Gly Ser Val Ile Asn Ser Arg Val Leu Thr 100 105 Ala Val His Gly Ile Gln Ser Ala Phe Asp Glu Ala Met Ser Tyr Cys 120 Arg Tyr His Pro Ser Lys Gly Tyr Trp Trp His Phe Lys Asp His Glu 135 Glu Gln Asp Lys Val Arg Pro Lys Ala Lys Arg Lys Glu Glu Pro Ser 150 155 Ser Ile Phe Gln Arg Gln Arg Val Asp Ala Leu Leu Leu Asp Leu Arg 170 Gln Lys Phe Pro Pro Lys Phe Val Gln Leu Lys Pro Gly Glu Lys Pro 185 Val Gln Val Asp Gln Thr Lys Lys Glu Ala Glu Pro Ile Pro Glu Thr 200 Val Lys Pro Glu Glu Lys Glu Thr Pro Glu Cys Thr Thr Arg Pro Gly 215 220 Val Leu Lys Ala Pro Leu Lys Asn Gly

<210> 145 <211> 1528 230

<212> DNA <213> Homo Sapiens

<400> 145

ccccctttt tttttaaact aaaatggagg ctggtttctt gccttaagga gcccattgcc 60 tttcccgctg aagtctagat gttgacatgt aataaagcgg gcagcaggat ggtggtggat 120 geggecaact ccaatgggee tttccagece gtggteette tecatatteg agatgtteet 180 cotgotgate aagagaaget ttttateeag aagttaegte agtgttgegt cetetttgac 240 tttgtttctg atccactaag tgacctaaag tggaaggaag taaaacqaqc tqctttaaqt 300 gaaatggtag aatatatcac ccataatcgg aatgtgatca cagagcctat ttacccagaa gtagtccata tgtttgcagt taacatgttt cgaacattac caccttcctc caatcctacg 420 ggagcggaat ttgacccgga ggaagatgaa ccaacgttag aagcagcctg gcctcatcta 480 cagettgttt atgaattttt ettaagattt ttagagtete cagattteca acetaatata 540 gcgaaqaaat atattgatca gaagtttgta ttgcagcttt taqaqctctt tqacaqtgaa 600 gatecteggg agagagattt tettaaaace accetteaca gaatetatgg gaaatteeta 660 ggcttgagag cttacatcag aaaacagata aataatatat tttataggtt tatttatgaa acagagcatc ataatggcat agcagagtta ctggaaatat tgggaagtat aattaatgga 780 tttqccttac cactaaaaga agagcacaag attttcttat tgaaggtgtt actacctttg 840 cacaaagtga aatototgag tgtotaccat coccagetgg catactgtgt agtgcagttt 900 ttagaaaagg acagcaccct cacggaacca gtggtgatgg cacttctcaa atactggcca 960 aagactcaca gtccaaaaga agtaatgttc ttaaacgaat tagaagagat tttagatgtc 1020 attgaaccat cagaatttgt gaagatcatg gaacccctct tccggcagtt ggccaaatgt 1080 gtctccagcc cacacttcca ggtggcagag cgagctctct attactggaa taatgaatac atcatgagtt taatcagtga caacgcagcq aagattctqc ccatcatqtt tccttccttq 1200 taccgcaact caaagaccca ttggaacaag acaatacatg gcttgatata caacgccctg 1260 aagetettea tggagatgaa eeaaaageta tttgatgaet gtacacaaca gttcaaagea 1320 gagaaactaa aagagaagct aaaaatgaaa gaacgggaag aagcatgggt taaaatagaa 1380 aatctagcca aagccaatcc ccaggtacta aaaaagagaa taacatgaaa aggcccaggg 1440 ttacttgaat gtttttataa gataggaata tatgtcttca ccatgggggg ggtctcgatt 1500 tcactaacgt tgtatatgaa aatgtctg 1528

<210> 146 <211> 449 <212> PRT

<213> Homo Sapiens

<400> 146

Ala Ala Trp Pro His Leu Gln Leu Val Tyr Glu Phe Phe Leu Arg Phe

```
Leu Glu Ser Pro Asp Phe Gln Pro Asn Ile Ala Lys Lys Tyr Ile Asp
                   150
Gln Lys Phe Val Leu Gln Leu Leu Glu Leu Phe Asp Ser Glu Asp Pro
               165
                                   170
Arg Glu Arg Asp Phe Leu Lys Thr Thr Leu His Arg Ile Tyr Gly Lys
                               185
Phe Leu Gly Leu Arg Ala Tyr Ile Arg Lys Gln Ile Asn Asn Ile Phe
                            200
Tyr Arg Phe Ile Tyr Glu Thr Glu His His Asn Gly Ile Ala Glu Leu
                        215
                                            220
Leu Glu Ile Leu Gly Ser Ile Ile Asn Gly Phe Ala Leu Pro Leu Lys
                    230
                                        235
Glu Glu His Lys Ile Phe Leu Leu Lys Val Leu Leu Pro Leu His Lys
                245
                                    250
Val Lys Ser Leu Ser Val Tyr His Pro Gln Leu Ala Tyr Cys Val Val
                                265
Gln Phe Leu Glu Lys Asp Ser Thr Leu Thr Glu Pro Val Val Met Ala
                            280
                                                285
Leu Leu Lys Tyr Trp Pro Lys Thr His Ser Pro Lys Glu Val Met Phe
                        295
                                           300
Leu Asn Glu Leu Glu Glu Ile Leu Asp Val Ile Glu Pro Ser Glu Phe
                    310
                                        315
Val Lys Ile Met Glu Pro Leu Phe Arg Gln Leu Ala Lys Cys Val Ser
                325
                                    330
Ser Pro His Phe Gln Val Ala Glu Arg Ala Leu Tyr Tyr Trp Asn Asn
            340
                                345
                                                    350
Glu Tyr Ile Met Ser Leu Ile Ser Asp Asn Ala Ala Lys Ile Leu Pro
                            360
                                                365
Ile Met Phe Pro Ser Leu Tyr Arg Asn Ser Lys Thr His Trp Asn Lys
                        375
                                            380
Thr Ile His Gly Leu Ile Tyr Asn Ala Leu Lys Leu Phe Met Glu Met
                   390
                                        395
Asn Gln Lys Leu Phe Asp Asp Cys Thr Gln Gln Phe Lys Ala Glu Lys
                405
                                    410
Leu Lys Glu Lys Leu Lys Met Lys Glu Arg Glu Glu Ala Trp Val Lys
                                425
                                                    430
Ile Glu Asn Leu Ala Lys Ala Asn Pro Gln Val Leu Lys Lys Arg Ile
        435
                            440
```

Thr

<210> 147 <211> 1580 <212> DNA

<213> Homo Sapiens

<400> 147

atcocctocg gttttcctca gtctccacgt acgtccctca aagcgcgtcc taaaaccggg 60 ataaccggga ggcctccaccat ggacaccacgg gagggcttgc cacgcggagga gccgcctgcg 120 catgctccat cgcctgggaa atttggtgag cggcctccac ctaaacgact tactagggaa 180 gcttgcacaga agtcatattg aaatgaaaaa aggtttttt gccacctcc ttggtaat 320 gttgcacaga agtcatatgg aaatgaaaaa aggtttttt gccacctcc ttggtaata 360 ctaatgggaa gcggatgga gaaaaaaaa gaacaaatgg aacggatgg ttgttctgaa 360 caagagtct aaccgtgtgc atttattggg ataggaaata gtgaccaaga aatgcagcag 420 caagagtctc aaggaaga ctattgcaca gccaaaacat tgtaatatat tgactcaqac 480

aagegaaage actteatttt ttetgtaaag atgttetatg geaacagtga tgacattggt 540 gtgttcctca gcaagcggat aaaagtcatc tccaaacctt ccaaaaagaa gcagtcattg 600 aaaaatgctg acttatgcat tgcctcagga acaaaggtgg ctctgtttaa tcgactacqa 660 teccagacag ttagtaccag atacttgeat gtagaaggag gtaattttea tqccaqttea 720 cagcagtggg gagccttttt tattcatctc ttggatgatg atgaatcaga aggagaagaa 780 ttcacagtcc gagatgtcta catccattat ggacaaacat gcaaacttgt gtgctcagtt 840 actggcatgg cactcccaag attgataatt atgaaagttg ataagcatac cgcattattg 900 gatgcagatg atcctgtgtc acaactccat aaatgtgcat tttaccttaa ggatacagaa agaatgtatt tgtgcctttc tcaagaaaga ataattcaat ttcaggccac tccatgtcca 1020 aaagaaccaa ataaagagat gataaatgat ggcgcttcct ggacaatcat tagcacagat 1080 aaggcagagt atacatttta tgagggaatg ggccctgtcc ttgccccagt cactcctgtq 1140 cctgtggtag agagccttca gttgaatggc ggtggggacg tagcaatgct tgaacttaca 1200 ggacagaatt tcactccaaa tttacgagtg tggtttgggg atgtagaagc tgaaactatg 1260 tacaggtgtg gagagagtat getetgtgte gteccagaca tttetgcatt eegagaaggt tggagatggg tccggcaacc agtccaggtt ccagtaactt tggtccgaaa tgatggaatc 1380 atttattcca ccagcettac etttacetac acaccagaac cagggccacg gccacattgc 1440 agtgtagcag gagcaatcct tccagccaat tcaagccagg tgccccctaa cqaatcaaac acaaacagcg agggaagtta cacaaacgcc agcacaaatt caaccagtgt cacatcatct 1560 acagecacag tggtatecta 1580

<210> 148

<211> 500

<212> PRT <213> Homo Sapiens

<400> 148

Met Asp His Thr Glu Gly Leu Pro Ala Glu Glu Pro Pro Ala His Ala 1 10 Pro Ser Pro Gly Lys Phe Gly Glu Arg Pro Pro Pro Lys Arg Leu Thr Arg Glu Ala Met Arg Asn Tyr Leu Lys Glu Arg Gly Asp Gln Thr Val 40 Leu Ile Leu His Ala Lys Val Ala Gln Lys Ser Tyr Gly Asn Glu Lys Arg Phe Phe Cys Pro Pro Pro Cys Val Tyr Leu Met Gly Ser Gly Trp 70 75 Lys Lys Lys Glu Gln Met Glu Arg Asp Gly Cys Ser Glu Gln Glu 90 Ser Gln Pro Cys Ala Phe Ile Gly Ile Gly Asn Ser Asp Gln Glu Met 100 Gln Gln Leu Asn Leu Glu Gly Lys Asn Tyr Cys Thr Ala Lys Thr Leu 115 120 Tyr Ile Ser Asp Ser Asp Lys Arg Lys His Phe Ile Phe Ser Val Lys 135 Met Phe Tyr Gly Asn Ser Asp Ile Gly Val Phe Leu Ser Lys Arg 150 155 Ile Lys Val Ile Ser Lys Pro Ser Lys Lys Lys Gln Ser Leu Lys Asn 165 170 Ala Asp Leu Cys Ile Ala Ser Gly Thr Lys Val Ala Leu Phe Asn Arg 180 185 Leu Arg Ser Gln Thr Val Ser Thr Arg Tyr Leu His Val Glu Gly Gly 200 Asn Phe His Ala Ser Ser Gln Gln Trp Gly Ala Phe Phe Ile His Leu 215 Leu Asp Asp Glu Ser Glu Gly Glu Glu Phe Thr Val Arg Asp Val

120

180

240

300

480

540

660

```
230
                                        235
Tyr Ile His Tyr Gly Gln Thr Cys Lys Leu Val Cys Ser Val Thr Gly
                245
                                    250
Met Ala Leu Pro Arg Leu Ile Ile Met Lys Val Asp Lys His Thr Ala
                                265
Leu Leu Asp Ala Asp Asp Pro Val Ser Gln Leu His Lys Cys Ala Phe
                            280
Tyr Leu Lys Asp Thr Glu Arg Met Tyr Leu Cys Leu Ser Gln Glu Arg
                        295
                                            300
Ile Ile Gln Phe Gln Ala Thr Pro Cys Pro Lys Glu Pro Asn Lys Glu
                    310
                                        315
Met Ile Asn Asp Gly Ala Ser Trp Thr Ile Ile Ser Thr Asp Lys Ala
                                    330
Glu Tyr Thr Phe Tyr Glu Gly Met Gly Pro Val Leu Ala Pro Val Thr
            340
                                345
Pro Val Pro Val Val Glu Ser Leu Gln Leu Asn Gly Gly Asp Val
                            360
                                                365
Ala Met Leu Glu Leu Thr Gly Gln Asn Phe Thr Pro Asn Leu Arg Val
                        375
Trp Phe Gly Asp Val Glu Ala Glu Thr Met Tyr Arg Cys Gly Glu Ser
                    390
                                        395
Met Leu Cys Val Val Pro Asp Ile Ser Ala Phe Arg Glu Gly Trp Arg
                                    410
Trp Val Arg Gln Pro Val Gln Val Pro Val Thr Leu Val Arg Asn Asp
                                425
                                                    430
Gly Ile Ile Tyr Ser Thr Ser Leu Thr Phe Thr Tyr Thr Pro Glu Pro
                            440
Gly Pro Arg Pro His Cys Ser Val Ala Gly Ala Ile Leu Pro Ala Asn
                        455
Ser Ser Gln Val Pro Pro Asn Glu Ser Asn Thr Asn Ser Glu Gly Ser
                    470
                                        475
Tyr Thr Asn Ala Ser Thr Asn Ser Thr Ser Val Thr Ser Ser Thr Ala
                                    490
Thr Val Val Ser
            500
      <210> 149
      <211> 1248
      <212> DNA
      <213> Homo Sapiens
      <400> 149
```

caagatateg aattecaaat ttgagggeet eeeggetetg gegeeggagg gagageteag gccgccatgc gcgacaggac ccacgagctg agacaggggg atgacagctc ggacgaagag gacaaggagc gggtegeget ggtggtgcac cegggcacgg caeggetggg gageceggac gaggagttct tccacaaggt ccggacaatt cgtcagacta ttgtcaaact ggggaataaa gtccaggagt tggagaaaca gcaggtcacc atcctggcca cgccccttcc cgaggagagc atgaagcagg agctgcagaa cctgcgcgat gagatcaaac agctggggag ggagatccgc ctgcagctga aggccataga gccccagaag gaggaagctg atgagaacta taactccgtc aacacaagaa tgagaaaaac ccagcatggg gtcctgtccc agcaattcgt ggagctcatc aacaagtgca attcaatgca gtccgaatac cgggagaaga acgtggagcg gattcggagg cagetgaaga teaccaatge tggcatggtg tetgatgagg agttggatea gatgetggae agtgggcaaa gegaggtgtt tgtgtecaat ateettaagg acaegeaggt gaetegaeag gccttaaatg agatctcggc ccggcacagt gagatccagc agcttgaacg cagtattcgt 720 gagctgcacg acatattcac ttttctggct accgaagtgg agatgcaggg ggagatgatc

<211> 297 <212> PRT

<213> Homo Sapiens

<400> 150 Met Arg Asp Arg Thr His Glu Leu Arg Gln Gly Asp Asp Ser Ser Asp 1.0 Glu Glu Asp Lys Glu Arg Val Ala Leu Val Val His Pro Gly Thr Ala 25 Arg Leu Gly Ser Pro Asp Glu Glu Phe Phe His Lys Val Arg Thr Ile 40 Arg Gln Thr Ile Val Lys Leu Gly Asn Lys Val Gln Glu Leu Glu Lys Gln Gln Val Thr Ile Leu Ala Thr Pro Leu Pro Glu Glu Ser Met Lys 70 75 Gln Glu Leu Gln Asn Leu Arg Asp Glu Ile Lys Gln Leu Gly Arg Glu Ile Arg Leu Gln Leu Lys Ala Ile Glu Pro Gln Lys Glu Glu Ala Asp 105 Glu Asn Tyr Asn Ser Val Asn Thr Arg Met Arg Lys Thr Gln His Gly 120 Val Leu Ser Gln Gln Phe Val Glu Leu Ile Asn Lys Cys Asn Ser Met 135 Gln Ser Glu Tyr Arg Glu Lys Asn Val Glu Arg Ile Arg Arg Gln Leu 150 155

Lys Ile Thr Asn Ala Gly Met Val Ser Asp Glu Glu Leu Asp Gln Met 165

Leu Asp Ser Gly Gln Ser Glu Val Phe Val Ser Asn Ile Leu Lys Asp 180

180

185

180

185

185

195

200

Glu Ile Gln Gln Leu Glu Arg Ser Ile Arg Glu Leu His Asp Ile Phe 210

210

215

Thr Phe Leu Ala Thr Glu Val Glu Met Gln Gly Glu Met Ile Asn Arg 225 230 235 240 Ile Glu Lys Asn Ile Leu Ser Ser Ala Asp Tyr Val Glu Arg Gly Glu 245 250 250 255

Glu His Val Lys Thr Ala Leu Glu Asn Gln Lys Lys Val Arg Lys Lys Lys 260 265 270 Lys Val Leu Ile Ala Ile Cys Val Ser Ile Thr Val Val Leu Leu Ala 275 280 285

Val Ile Ile Gly Val Thr Val Val Gly 290 295

<210> 151

<211> 1953 <212> DNA <213> Homo Sapiens

<400> 151

acgcctgcca ggagcaagcc gaagagccag coggccggcg cactccgact ccgaqcaqtc 60 totgtootto qaccoqageo cogoqocott tooqqqaeeo etqeeeeqeq qqcaqeqetq 120 ccaacctgcc ggccatggag accccgtccc agcggcgcgc cacccgcagc ggggcgcagg 180 ccagetecae teegetgteg eccaeeegea teaceegget geaggagaag gaggacetge 240 aggageteaa tgategettg geggtetaca tegacegtgt gegetegetg gaaacqqaqa 300 acgcaqggct gcgccttcqc atcaccqaqt ctgaaqaqqt qqtcaqccqc qaqqtqtccq 360 gcatcaaggc cgcctacgaq qccqagctcq qqqatqcccq caaqacctt qactcaqtaq 420 ccaaggagcg cgcccgcctg cagctggagc tgagcaaagt gcgtgaggag tttaaggagc 480 tgaaagegeg caataccaag aaggagggtg acetgatage tgetcagget eggetgaagg 540 acctggaggc totgctgaac tocaaggagg cogcactgag cactgctctc agtgagaagc 600 gcacqctqqa qqqcqaqctq catqatctqc qqqqccaqqt qqccaaqctt qaqqcaqccc 660 taggtgaggc caagaagcaa cttcaggatg agatgctgcg gcgggtggat gctqaqaaca 720 ggctgcagac catgaaggag gaactggact tccagaagaa catctacagt qaqqaqctqc 780 gtgagaccaa gcgccgtcat gagacccgac tggtggagat tgacaatqqq aaqcaqcqtq 840 agtttgagag ccggctggcg gatgcgctgc aggaactgcg ggcccagcat gaggaccagg 900 tggagcagta taagaaggag ctggagaaga cttattctgc caagctggac aatgccaggc 960 aqtctqctqa qaqqaacaqc aacctqqtqq qqqctqccca cqaqqaqctq caqcaqtcqc 1020 gcatccgcat cgacagcete tetgeccage teagecaget ecagaagcag etggcageca 1080 aggaggegaa gettegagae etggaggaet caetggeeeg tgagegggae accageegge 1140 ggctgctggc ggaaaaggag cgggaqatgg ccqaqatqcq qqcaaqqatq caqcaqcagc 1200 tggacgagta ccaggagett ctggacatca agetggeett ggacatggag atccacget 1260 accgcaaget ettggaggge gaggaggaga ggetaegeet gteececage eetacetege 1320 agegeageeg tggccgtget teeteteact cateceagae acagggtggg ggcagegtea 1380 ccaaaaagcg caaactggag tccactgaga gccgcagcag cttctcacag cacgcacqca 1440 ctagcgggcg cgtggccgtg gaggaggtgg atgaggaggg caagtttgtc cggctgcqca 1500 acaagtccaa tgaggaccag tccatgggca attggcagat caaqcgccag aatggagatg 1560 atcccttgct gacttacogg ttcccaccaa aqttcaccct qaaqqctqqq caqqtqqtqa cgatctgggc tgcaggagct ggggccaccc acagcccccc taccgacctg gtgtggaagg cacagaacac ctggggctgc gggaacagcc tgcgtacggc tctcatcaac tccactgggg 1740 aagaagtggc catgcgcaag ctggtgcgct cagtgactgt ggttgaggac gacgaggatg aggatggaga tgacctgctc catcaccacc acgtgagtgg tagccgccgc tqaqqccqaq 1860 cctqcactgg ggccaccagc caggcctggg ggcagcctct ccccagcctc cccgtgccaa 1920 aaatetttte attaaagaat gttttggaac ttt

1953

<210> 152 <211> 572

<212> PRT

<213> Homo Sapiens

<400> 152

Met Glu Thr Pro Ser Gln Arg Arg Ala Thr Arg Ser Gly Ala Gln Ala Ser Ser Thr Pro Leu Ser Pro Thr Arg Ile Thr Arg Leu Gln Glu Lys 25 Glu Asp Leu Gln Glu Leu Asn Asp Arg Leu Ala Val Tyr Ile Asp Arg 40 45 Val Arg Ser Leu Glu Thr Glu Asn Ala Gly Leu Arg Leu Arg Ile Thr Glu Ser Glu Glu Val Val Ser Arg Glu Val Ser Gly Ile Lys Ala Ala

Tyr Glu Ala Glu Leu Gly Asp Ala Arg Lys Thr Leu Asp Ser Val Ala 90 Lys Glu Arg Ala Arg Leu Gln Leu Glu Leu Ser Lys Val Arg Glu Glu 105 Phe Lys Glu Leu Lys Ala Arg Asn Thr Lys Lys Glu Gly Asp Leu Ile 120 Ala Ala Gln Ala Arg Leu Lys Asp Leu Glu Ala Leu Leu Asn Ser Lys 135 140 Glu Ala Ala Leu Ser Thr Ala Leu Ser Glu Lys Arg Thr Leu Glu Gly 150 155 Glu Leu His Asp Leu Arg Gly Gln Val Ala Lys Leu Glu Ala Ala Leu 170 Gly Glu Ala Lys Lys Gln Leu Gln Asp Glu Met Leu Arg Arg Val Asp 185 Ala Glu Asn Arg Leu Gln Thr Met Lys Glu Glu Leu Asp Phe Gln Lys 200 Asn Ile Tyr Ser Glu Glu Leu Arg Glu Thr Lys Arg Arg His Glu Thr 215 Arg Leu Val Glu Ile Asp Asn Gly Lys Gln Arg Glu Phe Glu Ser Arg 230 235 Leu Ala Asp Ala Leu Gln Glu Leu Arg Ala Gln His Glu Asp Gln Val 245 250 Glu Gln Tyr Lys Lys Glu Leu Glu Lys Thr Tyr Ser Ala Lys Leu Asp 260 265 Asn Ala Arq Gln Ser Ala Glu Arq Asn Ser Asn Leu Val Gly Ala Ala 280 His Glu Glu Leu Gln Gln Ser Arg Ile Arg Ile Asp Ser Leu Ser Ala 295 300 Gln Leu Ser Gln Leu Gln Lys Gln Leu Ala Ala Lys Glu Ala Lys Leu 310 315 Arg Asp Leu Glu Asp Ser Leu Ala Arg Glu Arg Asp Thr Ser Arg Arg 325 330 Leu Leu Ala Glu Lys Glu Arg Glu Met Ala Glu Met Arg Ala Arg Met 340 345 Gln Gln Gln Leu Asp Glu Tyr Gln Glu Leu Leu Asp Ile Lys Leu Ala 360 Leu Asp Met Glu Ile His Ala Tyr Arg Lys Leu Leu Glu Gly Glu Glu 375 380 Glu Arg Leu Arg Leu Ser Pro Ser Pro Thr Ser Gln Arg Ser Arg Gly 390 395 Arg Ala Ser Ser His Ser Ser Gln Thr Gln Gly Gly Gly Ser Val Thr 405 410 Lys Lys Arg Lys Leu Glu Ser Thr Glu Ser Arg Ser Ser Phe Ser Gln 425 His Ala Arg Thr Ser Gly Arg Val Ala Val Glu Glu Val Asp Glu Glu 440 Gly Lys Phe Val Arg Leu Arg Asn Lys Ser Asn Glu Asp Gln Ser Met 455 460 Gly Asn Trp Gln Ile Lys Arg Gln Asn Gly Asp Asp Pro Leu Leu Thr 470 475 Tyr Arg Phe Pro Pro Lys Phe Thr Leu Lys Ala Gly Gln Val Val Thr 490 Ile Trp Ala Ala Gly Ala Gly Ala Thr His Ser Pro Pro Thr Asp Leu 505

Val Trp Lys Ala Gln Asn Thr Trp Gly Cys Gly Asn Ser Leu Arg Thr

```
WO 99/04265
                                                            PCT/US98/14679
        515
                            520
Ala Leu Ile Asn Ser Thr Gly Glu Glu Val Ala Met Arg Lys Leu Val
                        535
                                            540
Arg Ser Val Thr Val Val Glu Asp Asp Glu Asp Glu Asp Gly Asp Asp
                    550
                                        555
Leu Leu His His His Wal Ser Gly Ser Arg Arg
                565
      <210> 153
      <211> 1610
      <212> DNA
      <213> Homo Sapiens
      <400> 153
ctgcaggaat tcggcacgag cggtcacgcc gagccagcgc ctgggcctgg aaccgggccg
                                                                       60
tageccecca gtttegecca ecacetecet accatggace ecegeaaagt gaacqagett
                                                                      120
egggeetttg tgaaaatgtg taagcaggat eegagegtte tgtacacega ggaaatgege
                                                                      180
ttcctgaggg agtgggtgga gagcataggt ggtaaagtac cacctgctac tcagaaagct
                                                                      240
atatcagaag aaaataccaa ggaagaaaaa cctgatagta agaaggtgga ggaagactta
                                                                      300
aaggcagacg aaccatcaag tgaggaaagt gatctagaaa ttgataaaga aggtgtgatt
gaaccagaca etgatgetee teaagaaatg ggagatgaaa atgeggagat aacggaggag
                                                                      420
atgatggatc aggcaaatga taaaaaagtg gctgctattg aagccctaaa tgatggtgaa
                                                                      480
ctccagaaag ccattgactt attcacagat gccatcaagc tgaatcctcg cttggccatt
                                                                      540
ttgtatgcca agagggccag tgtcttcgtc aaattacaga agccaaatgc tgccatccga
                                                                      600
gactgtgaca gagccattga aataaatcct gattcagctc agccttacaa gtggcggggg
                                                                      660
aaagcacaca gacttctagg ccactgggaa gaagcagccc atgatcttgc ccttgcctgt
                                                                      720
aaattggatt atgatgaaga tgctagtgca atgctgaaag aagttcaacc tagggcacag
                                                                      780
aaaattgcag aacatcggag aaagtatgag cgaaaacgtg aagagcgaga qatcaaagaa
                                                                      840
agaatagaac gagttaagaa ggctcgagaa gagcatgaga gagcccagag ggaggaagaa
                                                                      900
gecagaegae agteaggage teagtatgge tetttteeag gtggetttee tgggggaatg
                                                                      960
cctggtaatt ttcccggagg aatgcctgga atgggagggg gcatgcctgg aatggctgga
                                                                     1020
atgectggac tcaatgaaat tcttagtgat ccagaggttc ttgcagccat gcaggatcca
                                                                     1080
gaagttatgg tggctttcca ggatgtggct cagaacccag caaatatgtc aaaataccag
                                                                     1140
agcaacccaa aggttatgaa tctcatcagt aaattgtcag ccaaatttgg aggtcaagcg
                                                                     1200
taatgtcctt ctgataaata aagcccttgc tgaaggaaaa gcaacctaga tcaccttatg
                                                                     1260
gatgtegeaa taatacaaac cagtgtacct ctgaccttct catcaagaga getggggtge
                                                                    1320
tttgaagata atccctaccc ctctccccca aatgcagctg aagcatttta cagtggtttg
                                                                     1380
ccattagggt attcattcag ataatgtttt cctactagga attacaaact ttaaacactt
                                                                     1440
tttaaatott caaaatattt aaaacaaatt taaagggcct gttaattott atattttot
                                                                     1500
ttactaatca ttttggattt ttttctttga attattggca gggaatatac ttatqtatqq
                                                                     1560
aagattactg ctctgagtga aataaaagtt attagtgcga ggcaaacata
                                                                     1610
      <210> 154
      <211> 369
      <212> PRT
      <213> Homo Sapiens
```

<400> 154

	50					55					60				
Val 65	Glu	Glu	Asp	Leu	Lys 70	Ala	Asp	Glu	Pro	Ser 75	Ser	Glu	Glu	Ser	Asp 80
Leu	Glu	Ile	Asp	Lys 85	Glu	Gly	Val	Ile	Glu 90	Pro	Asp	Thr	Asp	Ala 95	Pro
Gln	Glu	Met	Gly 100	Asp	Glu	Asn	Ala	Glu 105	Ile	Thr	Glu	Glu	Met 110	Met	Asp
Gln	Ala	Asn 115	Asp	Lys	Lys	Val	Ala 120	Ala	Ile	Glu	Ala	Leu 125	Asn	Asp	Gly
Glu	Leu 130	Gln	Lys	Ala	Ile	Asp	Leu	Phe	Thr	Asp	Ala 140	Ile	Lys	Leu	Asn
Pro 145	Arg	Leu	Ala	Ile	Leu 150	Tyr	Ala	Lys	Arg	Ala 155	Ser	Val	Phe	Val	Lys 160
Leu	Gln	Lys	Pro	Asn 165	Ala	Ala	Ile	Arg	Asp 170	Cys	Asp	Arg	Ala	Ile 175	Glu
			180					185	Lys				190		
		195					200		Ala			205			
	210					215			Ser		220				
225					230				His	235					240
				245					Arg 250					255	•
			260					265	Arg				270		_
		275					280		Pro			285			-
	290					295			Pro		300			_	
305					310				Asn	315				-	320
				325					Glu 330					335	
			340					345	Ser				350		
Lys	Val	Met 355	Asn	Leu	Ile	Ser	Lys 360	Leu	Ser	Ala	Lys	Phe 365	Gly	Gly	Gln

<210> 155 <211> 1323

<212> DNA

<213> Homo Sapiens

<400> 155

cacaaaggca ccaaaccaca aaacgtcaca cgtaaacatc atacgtggca accacaagcc 60
aatcagttgg atatttcatt cattggtata catatggact gtaaggtggt tttcaggttg 120
cagaaaagat ggaaaaaagg acatgtgcac tctgccccaa agatgtcgaa tataacgtcc 180
tgtactttgc acaatcagag aatatagctg ctcatgagaa ttgttttgctg tattcttcag
gacttgtgga atgtgaggat caggatccac ttaatcctga tagaagtttg cataaaagga
gagcaccgt gggatgtgat ttaaaaaaact gtaacaagaa ttaccacttt ttcgtgcca 420

```
agaaggacga cgcagttcca cagtctgatg gagttcgagg aatttataaa ctgctttgcc
                                                                      480
agcaacatgc tcaattcccg atcatcgctc aaagtgctaa attttcagga gtgaaaagaa
aaagaggaag gaagaaaccc ctctcaggca atcatgtaca gccacccgaa acaatgaaat
                                                                      600
gtaatacatt cataagacaa gtgaaagaag agcatggcag acacacagat gcaactgtga
                                                                      660
aagttoottt tottaagaaa tgcaagggaa gcaggactto ttaattaott acttgaagaa
atattagnca aagttcattc aattccagaa aaactcatgg atgagactta cttcagaatc
                                                                      780
agactatgaa gaaatcggga gtgcactttt tgactgtaga ttgttcgaag acacatttgt
                                                                      840
aaattttcaa gcagcaatag agaaaaaaat tcatgcatct caacaaaggt ggcagcagtt
gaaggaagag attgagctac ttcaggactt aaaacaaacc ttgtgctctt ttcaagaaaa
                                                                      960
tagagatett atgteaagtt etacateaat ateateeetg tettattagg gattaceatt
                                                                     1020
tectaageca agagteatgt caaattgeaa teaggeteaa aaceagagae eaggetgtga
                                                                     1080
aatccacaca totttagaac tagtcgtotc ctcttggcct cagcagetet tccctgttct
                                                                     1140
tactggttga cattttgatc actctttgca cactcttgtg ttttttgctc actgtcacac
                                                                     1200
tcccagcacc tagtatgctc agtaaatgtt tgtggaataa gtgcataaaa tgttcttaac
ctttgattct acttacagcc catgatagcc tcttagatat aataaatttg gattatacta
                                                                     1320
aaa
                                                                     1323
```

<210> 156 <211> 191 <212> PRT

<213> Homo Sapiens

<400> 156

Met Glu Lys Arg Thr Cys Ala Leu Cys Pro Lys Asp Val Glu Tyr Asn 5 10 Val Leu Tyr Phe Ala Gln Ser Glu Asn Ile Ala Ala His Glu Asn Cys 25 Leu Leu Tyr Ser Ser Gly Leu Val Glu Cys Glu Asp Gln Asp Pro Leu Asn Pro Asp Arg Ser Phe Asp Val Glu Ser Val Lys Lys Glu Ile Gln Arg Gly Arg Lys Leu Lys Cys Lys Phe Cys His Lys Arg Gly Ala Thr Val Gly Cys Asp Leu Lys Asn Cys Asn Lys Asn Tyr His Phe Phe Cys 90 Ala Lys Lys Asp Asp Ala Val Pro Gln Ser Asp Gly Val Arg Gly Ile 105 Tyr Lys Leu Ceys Gln Gln His Ala Gln Phe Pro Ile Ile Ala Gln 120 Ser Ala Lys Phe Ser Gly Val Lys Arg Lys Arg Gly Arg Lys Lys Pro 140 Leu Ser Gly Asn His Val Gln Pro Pro Glu Thr Met Lys Cys Asn Thr 150 155 Phe Ile Arg Gln Val Lys Glu Glu His Gly Arg His Thr Asp Ala Thr 170 Val Lys Val Pro Phe Leu Lys Lys Cys Lys Gly Ser Arg Thr Ser

<210> 157 <211> 4065 <212> DNA <213> Homo Sapiens

180

<400> 157

atgtcgactg gggacagttt tgagactcga tttgaaaaaa tggacaacct gctgcgggat

185

3360

cccaaatcgg aagtgaattc ggattgtttg ctggatggat tggatgcttt ggtatatgat 120 ttggattttc ctgccttaag aaaaaacaaa aatattgaca actttttaag cagatataaa gacacaataa ataaaatcag agatttacga atgaaagctg aagattatga agtagtgaag 240 gtgattggta gaggtgcatt tggagaagtt caattggtaa ggcataaatc caccaggaag 300 gtatatgcta tgaagcttct cagcaaattt gaaatgataa agagatctga ttctgctttt 360 ttctgggaag aaagggacat catggetttt gccaacagtc cttgggttgt tcagetttt 420 tatgcattcc aagatgatcg ttatctctac atggtgatgg aatacatgcc tggtggagat 480 cttgtaaact taatgagcaa ctatgatgtg cctgaaaaat gggcacgatt ctatactgca 540 gaagtagttc ttgcattgga tgcaatccat tccatgggtt ttattcacag agatgtgaag 600 cctgataaca tgctgctgga taaatctgga catttgaagt tagcagattt tggtacttgt 660 atgaagatga ataaggaagg catggtacga tgtgatacaq cgqttqqaac acctqattat 720 atttcccctg aagtattaaa atcccaaggt ggtgatggtt attatggaag agaatgtgac 780 tggtggtcgg ttggggtatt tttatacgaa atgcttgtag gtgatacacc tttttatgca 840 gattetttgg ttggaactta cagtaaaatt atgaaccata aaaatteact tacettteet 900 gatgataatg acatatcaaa agaagcaaaa aaccttattt gtgccttcct tactgacagg 960 gaagtgaggt tagggcgaaa tggtgtagaa gaaatcaaac gacatctctt cttcaaaaat 1020 gaccagtggg cttgggaaac gctccgagac actgtagcac cagttgtacc cgatttaagt 1080 agtgacattg atactagtaa ttttgatgac ttggaagaag ataaaggaga ggaagaaaca 1140 ttccctattc ctaaagcttt cgttggcaat caactacctt ttgtaggatt tacatattat 1200 agcaatcgta gatacttatc ttcagcaaat cctaatgata acagaactag ctccaatgca 1260 gataaaaget tgcaggaaag tttgcaaaaa acaatetata agetggaaga acagetgcat 1320 aatgaaatgc agttaaaaga tgaaatggag cagaagtgca gaacctcaaa cataaaacta 1380 gacaagataa tgaaagaatt ggatgaagag ggaaatcaaa gaagaaatct agaatctaca 1440 gtgtctcaga ttgagaagga gaaaatgttg ctacagcata gaattaatga gtaccaaaga 1500 aaagctgaac aggaaaatga gaagagaaga aatgtagaaa atgaagtttc tacattaaag 1560 gatcagttgg aagacttaaa gaaagtcagt cagaattcac agcttgctaa tgagaagctg 1620 teccaqttac aaaagcaget agaagaagee aatgaettae ttaggaeaga ateggaeaca 1680 gctgtaagat tgaggaagag tcacacagag atgagcaagt caattagtca gttagagtcc 1740 ctgaacagag agttgcaaga gagaaatcga attttagaga attctaagtc acaaacagac 1800 aaagattatt accagctgca agctatatta gaagctgaac gaagagacag aggtcatgat 1860 tctgagatga ttggagacct tcaagctcga attacatctt tacaagagga ggtgaagcat 1920 ctcaaacata atctcgaaaa agtggaagga gaaagaaaag aggctcaaga catgcttaat cactcagaaa aggaaaagaa taatttagag atagatttaa actacaaact taaatcatta 2040 caacaacggt tagaacaaga ggtaaatgaa cacaaagtaa ccaaagctcg tttaactgac 2100 aaacatcaat ctattgaaga ggcaaagtct gtggcaatgt gtgagatgga aaaaaagctg aaagaagaaa gagaagctcg agagaaggct gaaaatcggg ttgttcagat tgagaaacag 2220 tgttccatgc tagacgttga tctgaagcaa tctcagcaga aactagaaca tttgactgga 2280 aataaagaaa ggatggagga tgaagttaag aatctaaccc tgcaactgga gcaggaatca 2340 aataagegge tgttgttaca aaatgaattg aagactcaag catttgagge agacaattta 2400 aaaggtttag aaaagcagat gaaacaggaa ataaatactt tattggaagc aaagagatta 2460 ttaqaatttg agttagctca gcttacgaaa cagtatagag gaaatgaagg acagatgcgg 2520 gagetacaag atcagettga agetgageaa tatttetega caetttataa aacceaggta aaggaactta aagaagaaat tgaagaaaaa aacagagaaa atttaaagaa aatacaggaa 2640 ctacaaaatg aaaaagaaac tettgetact cagttggate tagcagaaac aaaagetgag 2700 tetgagcagt tggcgcgagg cettetggaa gaacagtatt ttgaattgac gcaagaaagc 2760 aagaaagctg cttcaagaaa tagacaagag attacagata aagatcacac tgttagtcgg 2820 cttgaagaag caaacagcat gctaaccaaa gatattgaaa tattaagaag agagaatgaa 2880 gagctaacag agaaaatgaa gaaggcagag gaagaatata aactggagaa ggaggaggag 2940 atcagtaatc ttaaggctgc ctttgaaaag aatatcaaca ctgaacgaac ccttaaaaca 3000 caggotgtta acaaattggc agaaataatg aatcgaaaag attttaaaat tgatagaaag 3060 aaagctaata cacaagattt gagaaagaaa gaaaaggaaa atcgaaagct gcaactggaa 3120 ctcaaccaag aaagagagaa attcaaccag atggtagtga aacatcagaa ggaactgaat 3180 gacatgcaag cgcaattggt agaagaatgt gcacatagga atgagcttca gatgcagttq 3240 gccagcaaag agagtgatat tgagcaattg cgtgctaaac ttttggacct ctcggattct 3300 acaagtgttg ctagttttcc tagtgctgat gaaactgatg gtaacctccc agagtcaaga

attgaaggtt ggctttcagt accaaataga ggaaatatca aacgatatgg ctggaagaaa cagtatgttg tggtaagcag caaaaaaatt ttgttctata atgacgaaca agataaggag caatccaatc catctatggt attggacata gataaactgt ttcacgttag acctgtaacc caaggagatg tgtatagagc tgaaactgaa gaaattccta aaatattcca gatactatat gcaaatgaag gtgaatgtag aaaagatgta gagatggaac cagtacaaca agctgaaaaa actaatttcc aaaatcacaa aggecatgag tttattccta cactctacca ctttcctgcc aattgtgatg cctgtgccaa acctctctgg catgttttta agccacccc tgccctagag tgtcgaagat gccatgttaa gtgccacaga gatcacttag ataagaaaga ggacttaatt 3840 tgtccatgta aagtaagtta tgatgtaaca tcagcaagag atatgctgct gttagcatgt 3900 tctcaggatg aacaaaaaaa atgggtaact catttagtaa agaaaatccc taaqaatcca 3960 ccatctggtt ttgttcgtgc ttcccctcga acgctttcta caagatccac tgcaaatcag 4020 tettteegga aagtggteaa aaatacatet ggaaaaacta qttaa 4065

<210> 158 <211> 1354

<212> PRT

<213> Homo Sapiens

<400> 158

Met Ser Thr Gly Asp Ser Phe Glu Thr Arg Phe Glu Lys Met Asp Asn 10 Leu Leu Arg Asp Pro Lys Ser Glu Val Asn Ser Asp Cys Leu Leu Asp 25 Gly Leu Asp Ala Leu Val Tyr Asp Leu Asp Phe Pro Ala Leu Arg Lys 40 Asn Lys Asn Ile Asp Asn Phe Leu Ser Arg Tyr Lys Asp Thr Ile Asn 55 Lys Ile Arg Asp Leu Arg Met Lys Ala Glu Asp Tyr Glu Val Val Lys Val Ile Gly Arg Gly Ala Phe Gly Glu Val Gln Leu Val Arg His Lys Ser Thr Arg Lys Val Tyr Ala Met Lys Leu Leu Ser Lys Phe Glu Met 105 Ile Lys Arg Ser Asp Ser Ala Phe Phe Trp Glu Glu Arg Asp Ile Met 120 Ala Phe Ala Asn Ser Pro Trp Val Val Gln Leu Phe Tyr Ala Phe Gln 135 140 Asp Asp Arg Tyr Leu Tyr Met Val Met Glu Tyr Met Pro Gly Gly Asp 150 155 Leu Val Asn Leu Met Ser Asn Tyr Asp Val Pro Glu Lys Trp Ala Arg 165 170 Phe Tyr Thr Ala Glu Val Val Leu Ala Leu Asp Ala Ile His Ser Met 185 Gly Phe Ile His Arg Asp Val Lys Pro Asp Asn Met Leu Leu Asp Lys 200 Ser Gly His Leu Lys Leu Ala Asp Phe Gly Thr Cys Met Lys Met Asn Lys Glu Gly Met Val Arg Cys Asp Thr Ala Val Gly Thr Pro Asp Tyr 230 235 Ile Ser Pro Glu Val Leu Lys Ser Gln Gly Gly Asp Gly Tyr Tyr Gly 245 250 Arg Glu Cys Asp Trp Trp Ser Val Gly Val Phe Leu Tyr Glu Met Leu 265 Val Gly Asp Thr Pro Phe Tyr Ala Asp Ser Leu Val Gly Thr Tyr Ser 280

```
Lys Ile Met Asn His Lys Asn Ser Leu Thr Phe Pro Asp Asp Asn Asp
                       295
                                          300
Ile Ser Lys Glu Ala Lys Asn Leu Ile Cys Ala Phe Leu Thr Asp Arg
                  310
                                      315
Glu Val Arg Leu Gly Arg Asn Gly Val Glu Glu Ile Lys Arg His Leu
              325
                                  330
Phe Phe Lys Asn Asp Gln Trp Ala Trp Glu Thr Leu Arg Asp Thr Val
           340
                              345
Ala Pro Val Val Pro Asp Leu Ser Ser Asp Ile Asp Thr Ser Asn Phe
                         360
                                              365
Asp Asp Leu Glu Glu Asp Lys Gly Glu Glu Glu Thr Phe Pro Ile Pro
                      375
Lys Ala Phe Val Gly Asn Gln Leu Pro Phe Val Gly Phe Thr Tyr Tyr
                  390
                                      395
Ser Asn Arg Arg Tyr Leu Ser Ser Ala Asn Pro Asn Asp Asn Arg Thr
               405
                                  410
Ser Ser Asn Ala Asp Lys Ser Leu Gln Glu Ser Leu Gln Lys Thr Ile
                              425
Tyr Lys Leu Glu Glu Gln Leu His Asn Glu Met Gln Leu Lys Asp Glu
                          440
Met Glu Gln Lys Cys Arg Thr Ser Asn Ile Lys Leu Asp Lys Ile Met
                      455
Lys Glu Leu Asp Glu Glu Gly Asn Gln Arg Arg Asn Leu Glu Ser Thr
                  470
                                      475
Val Ser Gln Ile Glu Lys Glu Lys Met Leu Leu Gln His Arg Ile Asn
               485
                                  490
Glu Tyr Gln Arg Lys Ala Glu Gln Glu Asn Glu Lys Arg Arg Asn Val
           500
                              505
Glu Asn Glu Val Ser Thr Leu Lys Asp Gln Leu Glu Asp Leu Lys Lys
                          520
Val Ser Gln Asn Ser Gln Leu Ala Asn Glu Lys Leu Ser Gln Leu Gln
                      535
Lys Gln Leu Glu Glu Ala Asn Asp Leu Leu Arg Thr Glu Ser Asp Thr
                  550
                                      555
Ala Val Arg Leu Arg Lys Ser His Thr Glu Met Ser Lys Ser Ile Ser
              565
                                  570
Gln Leu Glu Ser Leu Asn Arg Glu Leu Gln Glu Arg Asn Arg Ile Leu
                              585
Glu Asn Ser Lys Ser Gln Thr Asp Lys Asp Tyr Tyr Gln Leu Gln Ala
                          600
Ile Leu Glu Ala Glu Arg Arg Asp Arg Gly His Asp Ser Glu Met Ile
                      615
Gly Asp Leu Gln Ala Arg Ile Thr Ser Leu Gln Glu Glu Val Lys His
                                      635
Leu Lys His Asn Leu Glu Lys Val Glu Gly Glu Arg Lys Glu Ala Gln
              645
                                  650
Asp Met Leu Asn His Ser Glu Lys Glu Lys Asn Asn Leu Glu Ile Asp
                              665
Leu Asn Tyr Lys Leu Lys Ser Leu Gln Gln Arg Leu Glu Gln Glu Val
       675
                          680
                                              685
Asn Glu His Lys Val Thr Lys Ala Arg Leu Thr Asp Lys His Gln Ser
                       695
                                          700
Ile Glu Glu Ala Lys Ser Val Ala Met Cys Glu Met Glu Lys Lys Leu
                   710
                                      715
Lys Glu Glu Arg Glu Ala Arg Glu Lys Ala Glu Asn Arg Val Val Gln
```

725 730 Ile Glu Lys Gln Cys Ser Met Leu Asp Val Asp Leu Lys Gln Ser Gln 740 745 Gln Lys Leu Glu His Leu Thr Gly Asn Lys Glu Arg Met Glu Asp Glu 760 Val Lys Asn Leu Thr Leu Gln Leu Glu Gln Glu Ser Asn Lys Arg Leu 775 780 Leu Leu Gln Asn Glu Leu Lys Thr Gln Ala Phe Glu Ala Asp Asn Leu 790 795 Lys Gly Leu Glu Lys Gln Met Lys Gln Glu Ile Asn Thr Leu Leu Glu 810 Ala Lys Arg Leu Leu Glu Phe Glu Leu Ala Gln Leu Thr Lys Gln Tyr 820 825 Arg Gly Asn Glu Gly Gln Met Arg Glu Leu Gln Asp Gln Leu Glu Ala 840 Glu Gln Tyr Phe Ser Thr Leu Tyr Lys Thr Gln Val Lys Glu Leu Lys 855 860 Glu Glu Ile Glu Glu Lys Asn Arg Glu Asn Leu Lys Lys Ile Gln Glu 870 875 Leu Gln Asn Glu Lys Glu Thr Leu Ala Thr Gln Leu Asp Leu Ala Glu 885 890 Thr Lys Ala Glu Ser Glu Gln Leu Ala Arg Gly Leu Leu Glu Glu Gln 900 905 Tyr Phe Glu Leu Thr Gln Glu Ser Lys Lys Ala Ala Ser Arg Asn Arg 920 Gln Glu Ile Thr Asp Lys Asp His Thr Val Ser Arg Leu Glu Glu Ala 935 940 Asn Ser Met Leu Thr Lys Asp Ile Glu Ile Leu Arg Arg Glu Asn Glu 950 955 Glu Leu Thr Glu Lys Met Lys Lys Ala Glu Glu Glu Tyr Lys Leu Glu 965 970 Lys Glu Glu Glu Ile Ser Asn Leu Lys Ala Ala Phe Glu Lys Asn Ile 980 985 Asn Thr Glu Arg Thr Leu Lys Thr Gln Ala Val Asn Lys Leu Ala Glu 1000 1005 Ile Met Asn Arg Lys Asp Phe Lys Ile Asp Arg Lys Lys Ala Asn Thr 1015 1020 Gln Asp Leu Arg Lys Lys Glu Lys Glu Asn Arg Lys Leu Gln Leu Glu 1030 1035 Leu Asn Gln Glu Arg Glu Lys Phe Asn Gln Met Val Val Lys His Gln 1045 1050 Lys Glu Leu Asn Asp Met Gln Ala Gln Leu Val Glu Glu Cys Ala His 1065 Arg Asn Glu Leu Gln Met Gln Leu Ala Ser Lys Glu Ser Asp Ile Glu 1080 1085 Gln Leu Arg Ala Lys Leu Leu Asp Leu Ser Asp Ser Thr Ser Val Ala 1095 1100 Ser Phe Pro Ser Ala Asp Glu Thr Asp Gly Asn Leu Pro Glu Ser Arg 1110 1115 Ile Glu Gly Trp Leu Ser Val Pro Asn Arg Gly Asn Ile Lys Arg Tyr 1125 1130 Gly Trp Lys Lys Gln Tyr Val Val Val Ser Ser Lys Lys Ile Leu Phe 1140 1145 1150 Tyr Asn Asp Glu Gln Asp Lys Glu Gln Ser Asn Pro Ser Met Val Leu 1160

Asp Ile Asp Lys Leu Phe His Val Arg Pro Val Thr Gln Gly Asp Val 1170 1175 1180	
Tyr Arg Ala Glu Thr Glu Glu Ile Pro Lys Ile Phe Gln Ile Leu Tyr	
1185 1190 1195 120	
Ala Asn Glu Gly Glu Cys Arg Lys Asp Val Glu Met Glu Pro Val Gln 1205 1210 1215	
Gln Ala Glu Lys Thr Asn Phe Gln Asn His Lys Gly His Glu Phe Ile 1220 1225 1230	
Pro Thr Leu Tyr His Phe Pro Ala Asn Cys Asp Ala Cys Ala Lys Pro	
1235 1240 1245	
Leu Trp His Val Phe Lys Pro Pro Pro Ala Leu Glu Cys Arg Arg Cys	
1250 1255 1260	
His Val Lys Cys His Arg Asp His Leu Asp Lys Lys Glu Asp Leu Ile	
1265 1270 1275 128	
Cys Pro Cys Lys Val Ser Tyr Asp Val Thr Ser Ala Arg Asp Met Leu	
Leu Leu Ala Cys Ser Gln Asp Glu Gln Lys Lys Trp Val Thr His Leu 1300 1305 1310	
Val Lys Lys Ile Pro Lys Asn Pro Pro Ser Gly Phe Val Arg Ala Ser	
1315 1320 1325	
Pro Arg Thr Leu Ser Thr Arg Ser Thr Ala Asn Gln Ser Phe Arg Lys	
1330 1335 1340	
Val Val Lys Asn Thr Ser Gly Lys Thr Ser	
1345 1350	
<pre><212> DNA <213> Homo Sapiens <400> 159 acaagctgga gttcgagcct gacagtgagg acaagatctc ggactgtgag gaaggattga gtaatgtggc acttgaatgc agtgagccaa gcacaagtgt atctgcttat gaccagttga aggcaccggc atccctggt gctggaaacc cacctgggac cccaaaggga aaggagagac tggtagagcaa tggcccaggt tccattattg gtgctaaagc tgggaagaat tctggcaaaa agaagggcct taacaatgaa ctgaacaacc ttccagtaat ctccaacatg acggtgcgt</pre>	60 120 180 240 300
tagacagttg ctcggcagca gacggcagtt tggctgctga gatgcctaaa ctggaagcag	360
aaggattaat tgacaagaaa aatttaggag ataaagaaaa gggcaaaaaa gctaacaact	420
gcaaaacgga caaaaacctc tctaaactga aaagtgcccg gcccattgcc cctgccccag	480
eccecactee eccgeageta ategetatae ecaetgeaae etttacaaeg accaceaetg ggacaatace eggactgece teceteacaa caaetgttgt teaggetaca ecaaagagte	540
etcegttaaa acceatteaa ecaaageeca caattatggg agageecate accgtgaace	600
cagetetqqt qtcactcaaa qae	660 683
<210> 160 <211> 227 <212> PRT <213> Homo Sapiens	000
<400> 160	
Lys Leu Glu Phe Glu Pro Asp Ser Glu Asp Lys Ile Ser Asp Cys Glu 1 5 10 15	
Glu Gly Leu Ser Asn Val Ala Leu Glu Cys Ser Glu Pro Ser Thr Ser	
Val Ser Ala Tyr Asp Gln Leu Lys Ala Pro Ala Ser Pro Gly Ala Gly	

40 45 Asn Pro Pro Gly Thr Pro Lys Gly Lys Arg Glu Leu Met Ser Asn Gly 55 60 Pro Gly Ser Ile Ile Gly Ala Lys Ala Gly Lys Asn Ser Gly Lys Lys Lys Gly Leu Asn Asn Glu Leu Asn Asn Leu Pro Val Ile Ser Asn Met Thr Ala Ala Leu Asp Ser Cys Ser Ala Ala Asp Gly Ser Leu Ala Ala 100 105 Glu Met Pro Lys Leu Glu Ala Glu Gly Leu Ile Asp Lys Lys Asn Leu 120 125 Gly Asp Lys Glu Lys Gly Lys Lys Ala Asn Asn Cys Lys Thr Asp Lys 135 140 Asn Leu Ser Lys Leu Lys Ser Ala Arg Pro Ile Ala Pro Ala Pro Ala 150 155 Pro Thr Pro Pro Gln Leu Ile Ala Ile Pro Thr Ala Thr Phe Thr Thr 165 170 Thr Thr Thr Gly Thr Ile Pro Gly Leu Pro Ser Leu Thr Thr Thr Val 180 185 Val Gln Ala Thr Pro Lys Ser Pro Pro Leu Lys Pro Ile Gln Pro Lys 200 Pro Thr Ile Met Gly Glu Pro Ile Thr Val Asn Pro Ala Leu Val Ser 210 215 Leu Lys Asp 225 <210> 161 <211> 662 <212> DNA <213> Homo Sapiens <400> 161 acceacagea gttgcacttg ctgageagge agettgagga cccaaatggt agetttteta 60 acgctgagat gagtgaactg agtgtggcac agaaaccaga aaaacttttg gagcgctgca 120 agtactggcc tgcttgtaaa aatggggatg agtgtgccta ccatcacccc atctcaccct gcaaagcctt ccccaattgt aaatttgctg aaaaatgttt gtttgttcac ccaaattgta 240 aatatgatgc aaagtgtact aaaccagatt gtcccttcac tcatgtgagt agaagaattc 300 cagtactgtc tccaaaacca gttgcaccac cagcaccacc ttccagtagt cagctctgcc 360 gttacttccc tgcttgtaag aagatggaat gtcccttcta tcatccaaaa cattgtaggt 420 ttaacactca atgtacaaga ccggactgca cattctacca tcccaccatt aatgtcccac 480 cacgacatgo ottgaaatgg attogaccto aaaccagoga atagcaccca gtootgootg 540 gcagaagatc atgcagtttg gaagttttca tgtctgatga aagatctcta cagaacttgt 600 caaatctttg aaacttggaa tatattgctt tcataatatg aaggtttatt ggctatctaa 660 aa 662 <210> 162

<210> 162 <211> 173 <212> PRT

<213> Homo Sapiens

<400> 162

Pro Gln Gln Leu His Leu Leu Ser Arg Gln Leu Glu Asp Pro Asn Gly 1 5 10 15

Ser Phe Ser Asn Ala Glu Met Ser Glu Leu Ser Val Ala Gln Lys Pro 20 25 30

```
Glu Lys Leu Leu Glu Arq Cys Lys Tyr Trp Pro Ala Cys Lys Asn Gly
Asp Glu Cys Ala Tyr His His Pro Ile Ser Pro Cys Lys Ala Phe Pro
                        55
Asn Cys Lys Phe Ala Glu Lys Cys Leu Phe Val His Pro Asn Cys Lys
Tyr Asp Ala Lys Cys Thr Lys Pro Asp Cys Pro Phe Thr His Val Ser
                85
                                    90
Arg Arg Ile Pro Val Leu Ser Pro Lys Pro Val Ala Pro Pro Ala Pro
                                105
Pro Ser Ser Ser Gln Leu Cys Arg Tyr Phe Pro Ala Cys Lys Lys Met
Glu Cys Pro Phe Tyr His Pro Lys His Cys Arg Phe Asn Thr Gln Cys
                        135
                                            140
Thr Arg Pro Asp Cys Thr Phe Tyr His Pro Thr Ile Asn Val Pro Pro
                                        155
Arg His Ala Leu Lys Trp Ile Arg Pro Gln Thr Ser Glu
                                    170
```

<210> 163 <211> 2912 <212> DNA

<213> Homo Sapiens

<400> 163

```
cagttgcttc agcgtcccgg tgtggctgtg ccgttggtcc tgtgcgqtca cttaqccaaq
                                                                    60
atgcctgagg aaacccagac ccaagaccaa ccgatggagg aggaggaggt tgagacgttc
                                                                   120
gcctttcagg cagaaattgc ccagttgatg tcattgatca tcaatacttt ctactcgaac
aaagagatot ttotgagaga gotoatttoa aattoatoag atgoattgga caaaatoogg
                                                                   240
tatgaaactt tgacagatcc cagtaaatta gactctggga aagagctgca tattaacctt
                                                                   300
ataccgaaca aacaagatcg aactctcact attgtggata ctggaattgg aatgaccaag
                                                                    360
getgacttga teaataacet tggtactate gecaagtetg ggaccaaage gttcatggaa
                                                                   420
gctttgcagg ctggtgcaga tatctctatg attggccagt tcggtgttgg tttttattct
                                                                   480
gcttatttgg ttgctgagaa agtaactgtg atcaccaaac ataacgatga tgaqcagtac
                                                                    540
gcttgggagt cctcagcagg gggatcattc acagtgagga caqacacaqg tqaacctatq
                                                                   600
qqtcqtqqaa caaaaqttat cctacacctq aaaqaaqacc aaactqaqta cttqqaqqaa
                                                                    660
cqaaqaataa aqqaqattqt qaaqaaacat tctcaqttta ttqqatatcc cattactctt
                                                                    720
tttgtggaga aggaacgtga taaagaagta agcgatgatg aggctgaaga aaaggaagac
                                                                    780
aaagaagaag aaaaagaaaa agaagagaaa gagtoggaag acaaacotga aattgaagat
                                                                    840
qttqqttctg atgaggaaga agaaaagaag gatggtgaca agaagaagaa gaagaagatt
                                                                    900
960
cccgacgata ttactaatga ggagtacgga gaattctata agagcttgac caatgactgg
                                                                   1020
gaagatcact tggcagtgaa gcatttttca gttgaaggac agttggaatt cagagccctt
                                                                   1080
ctatttgtcc cacgacgtgc tccttttgat ctgtttgaaa acagaaagaa aaagaacaat
                                                                   1140
atcaaattgt atgtacgcag agttttcatc atggataact gtgaggagct aatccctgaa
                                                                   1200
tatetgaact teattagagg ggtggtagae teggaggate teeetetaaa catateeggt
                                                                   1260
gagatgttgc aacaaagcaa aattttgaaa gttatcagga agaatttggt caaaaaatgc
                                                                   1320
ttagaactct ttactgaact ggcggaagat aaagagaact acaagaaatt ctatgaqcaq
ttctctaaaa acataaagct tggaatacac gaagactctc aaaatcggaa qaagctttca
                                                                   1440
gagetgttaa ggtactacac atctgeetet ggtgatgaga tggtttetet caaggactae
                                                                   1500
tgcaccagaa tgaaqqagaa ccagaaacat atctattata tcacaqqtqa qaccaaqqac
                                                                  1560
caqqtaqcta actcaqcctt tqtqqaacqt cttcqqaaac atqqcttaqa aqtqatctat
                                                                   1620
atgattgagc ccattgatga gtactgtgtc caacagctga aggaatttga ggggaaqact
                                                                   1680
ttagtgtcag tcaccaaaga aggcctggaa cttccagagg atgaaqaaga qaaaaaqaaq
                                                                   1740
caggaagaga aaaaaacaaa gtttgagaac ctctqcaaaa tcatqaaaqa catattqqaq
                                                                   1800
```

aaaaaagttg aaaaggtggt tgtgtcaaac cgattggtga catctccatg ctgtattgtc acaagcacat atggctggac agcaaacatg gagagaatca tgaaagctca agccctaaga gacaactcaa caatgggtta catggcaqca aagaaacacc tqqaqataaa ccctqaccat 1980 tccattattg agaccttaag gcaaaaggca gaggetgata agaacgacaa gtctgtgaag 2040 gatetggtea tettgettta tgaaactgeg eteetgtett etggetteag tetggaagat ccccagacac atgctaacag gatctacagg atgatcaaac ttggtctggg tattgatgaa 2160 gatgacccta ctgctgatga taccagtgct gctgtaactg aagaaatgcc accccttgaa 2220 ggagatgacg acacatcacg catggaagaa gtagactaat ctctggctga gggatgactt acctgttcag tactctacaa ttcctctgat aatatatttt caaggatgtt tttctttatt tttgttaata ttaaaaagtc tgtatggcat gacaactact ttaaggggaa gataagattt 2400 ctgtctacta agtgatgctg tgatacctta ggcactaaag cagagctagt aatgctttt 2460 gagtttcatg ttggttcttt cacagatggg gtaacgtgca ctgtaagacg tatgtaacat 2520 gatgttaact ttgtgtggtc taaagtgttt agctgtcaag ccggatgcct aagtagacca 2580 aatottgtta ttgaagtgtt ctgagctgta tcttgatgtt tagaaaagta ttcqttacat cttgtaggat ctactttttg aacttttcat tccctgtagt tgacaattct gcatgtacta gtcctctaga aataggttaa actgaagcaa cttgatggaa ggatctctcc acagggcttg 2760 ttttccaaag aaaagtattg tttggaggag caaagttaaa agcctaccta agcatatcgt aaagetgtte aaatactega geecagtett gtggatggaa atgtagtget egagteacat 2880 tetgettaaa gttgtaacaa atacagatga gt 2912

<210> 164

<211> 732

<212> PRT <213> Homo Sapiens

<400> 164

Met Pro Glu Glu Thr Gln Thr Gln Asp Gln Pro Met Glu Glu Glu Glu 10 Val Glu Thr Phe Ala Phe Gln Ala Glu Ile Ala Gln Leu Met Ser Leu 25 Ile Ile Asn Thr Phe Tyr Ser Asn Lys Glu Ile Phe Leu Arg Glu Leu Ile Ser Asn Ser Ser Asp Ala Leu Asp Lys Ile Arg Tyr Glu Thr Leu Thr Asp Pro Ser Lys Leu Asp Ser Gly Lys Glu Leu His Ile Asn Leu 75 Ile Pro Asn Lys Gln Asp Arg Thr Leu Thr Ile Val Asp Thr Gly Ile 90 Gly Met Thr Lys Ala Asp Leu Ile Asn Asn Leu Gly Thr Ile Ala Lys Ser Gly Thr Lys Ala Phe Met Glu Ala Leu Gln Ala Gly Ala Asp Ile 120 Ser Met Ile Gly Gln Phe Gly Val Gly Phe Tyr Ser Ala Tyr Leu Val 135 Ala Glu Lys Val Thr Val Ile Thr Lys His Asn Asp Asp Glu Gln Tyr 150 155 Ala Trp Glu Ser Ser Ala Gly Gly Ser Phe Thr Val Arg Thr Asp Thr 170 Gly Glu Pro Met Gly Arg Gly Thr Lys Val Ile Leu His Leu Lys Glu 185 Asp Gln Thr Glu Tyr Leu Glu Glu Arg Arg Ile Lys Glu Ile Val Lys 200 Lys His Ser Gln Phe Ile Gly Tyr Pro Ile Thr Leu Phe Val Glu Lys Glu Arg Asp Lys Glu Val Ser Asp Asp Glu Ala Glu Glu Lys Glu Asp DIN

WO 99/04265 PCT/US98/14679

230 235 Lys Glu Glu Glu Lys Glu Lys Glu Lys Glu Ser Glu Asp Lys Pro 245 250 Glu Ile Glu Asp Val Gly Ser Asp Glu Glu Glu Lys Lys Asp Gly 265 Asp Lys Lys Lys Lys Lys Ile Lys Glu Lys Tyr Ile Asp Gln Glu 280 Glu Leu Asn Lys Thr Lys Pro Ile Trp Thr Arg Asn Pro Asp Asp Ile 295 300 Thr Asn Glu Glu Tyr Gly Glu Phe Tyr Lys Ser Leu Thr Asn Asp Trp 310 315 Glu Asp His Leu Ala Val Lys His Phe Ser Val Glu Gly Gln Leu Glu 325 330 Phe Arg Ala Leu Leu Phe Val Pro Arg Arg Ala Pro Phe Asp Leu Phe 345 Glu Asn Arg Lys Lys Lys Asn Asn Ile Lys Leu Tyr Val Arg Arg Val 360 Phe Ile Met Asp Asn Cys Glu Glu Leu Ile Pro Glu Tyr Leu Asn Phe 375 380 Ile Arg Gly Val Val Asp Ser Glu Asp Leu Pro Leu Asn Ile Ser Arg 390 395 Glu Met Leu Gln Gln Ser Lys Ile Leu Lys Val Ile Arg Lys Asn Leu 405 410 Val Lys Lys Cys Leu Glu Leu Phe Thr Glu Leu Ala Glu Asp Lys Glu 420 425 Asn Tyr Lys Lys Phe Tyr Glu Gln Phe Ser Lys Asn Ile Lys Leu Gly 435 440 Ile His Glu Asp Ser Gln Asn Arg Lys Lys Leu Ser Glu Leu Leu Arg 455 Tyr Tyr Thr Ser Ala Ser Gly Asp Glu Met Val Ser Leu Lys Asp Tyr 470 475 Cys Thr Arg Met Lys Glu Asn Gln Lys His Ile Tyr Tyr Ile Thr Gly 485 490 Glu Thr Lys Asp Gln Val Ala Asn Ser Ala Phe Val Glu Arg Leu Arg 505 Lys His Gly Leu Glu Val Ile Tyr Met Ile Glu Pro Ile Asp Glu Tyr 520 Cys Val Gln Gln Leu Lys Glu Phe Glu Gly Lys Thr Leu Val Ser Val 535 540 Thr Lys Glu Gly Leu Glu Leu Pro Glu Asp Glu Glu Lys Lys Lys 550 Gln Glu Glu Lys Lys Thr Lys Phe Glu Asn Leu Cys Lys Ile Met Lys 570 Asp Ile Leu Glu Lys Lys Val Glu Lys Val Val Val Ser Asn Arg Leu 585 Val Thr Ser Pro Cys Cys Ile Val Thr Ser Thr Tyr Gly Trp Thr Ala 600 Asn Met Glu Arg Ile Met Lys Ala Gln Ala Leu Arg Asp Asn Ser Thr 615 620 Met Gly Tyr Met Ala Ala Lys Lys His Leu Glu Ile Asn Pro Asp His 630 635 Ser Ile Ile Glu Thr Leu Arg Gln Lys Ala Glu Ala Asp Lys Asn Asp 645 650 Lys Ser Val Lys Asp Leu Val Ile Leu Leu Tyr Glu Thr Ala Leu Leu 660 665

Ser Ser Gly Phe Ser Leu Glu Asp Pro Gln Thr His Ala Asn Arg Ile
675

Tyr Arg Met Ile Lys Leu Gly Leu Gly Ile Asp Glu Asp Asp Pro Thr
690
Ala Asp Asp Thr Ser Ala Ala Val Thr Glu Glu Met Pro Pro Leu Glu
705

Tyr Arg Met Glu Glu Val Asp
720

Tyr Asp Asp Asp Thr Ser Arg Met Glu Glu Val Asp
720

Tyr Asp Asp Asp Thr Ser Arg Met Glu Glu Val Asp
720

Tyr Asp Asp Asp Thr Ser Arg Met Glu Glu Val Asp
720

<210> 165 <211> 790

<211> /90 <212> DNA

<213> Homo Sapiens

<400> 165

60

120

180

240

300

360

480

540

600

660

720

780

790

<210> 166 <211> 259 <212> PRT

<213> Homo Sapiens

<400> 166

Asp Ser Glu Met Ala Ala Ser Met Phe Tyr Gly Arg Leu Val Ala Val 5 10 Ala Thr Leu Arg Asn His Arg Pro Arg Thr Ala Gln Arg Ala Ala Ala 25 Gln Val Leu Gly Ser Ser Gly Leu Phe Asn Asn His Gly Leu Gln Val 45 Gln Gln Gln Gln Arg Asn Leu Ser Leu His Glu Tyr Met Ser Met Glu Leu Leu Gln Glu Ala Gly Val Ser Val Pro Lys Gly Tyr Val Ala 70 Lys Ser Pro Asp Glu Ala Tyr Ala Ile Ala Lys Lys Leu Gly Ser Lys 90 Asp Val Val Ile Lys Ala Gln Val Leu Ala Gly Gly Arg Gly Lys Gly 105 Thr Phe Glu Ser Gly Leu Lys Gly Gly Val Lys Ile Val Phe Ser Pro 120 125 Glu Glu Ala Lys Ala Val Ser Ser Gln Met Ile Gly Lys Lys Leu Phe 135 Thr Lys Gln Thr Gly Glu Lys Gly Arg Ile Cys Asn Gln Val Leu Val

```
145
                    150
                                        155
Cys Glu Arg Lys Tyr Pro Arg Arg Glu Tyr Tyr Phe Ala Ile Thr Met
                165
                                    170
Glu Arg Ser Phe Gln Gly Pro Val Leu Ile Gly Ser Ser His Gly Gly
Val Asn Ile Glu Asp Val Ala Ala Glu Ser Pro Glu Ala Ile Ile Lys
                             200
Glu Pro Ile Asp Ile Glu Glu Gly Ile Lys Lys Glu Gln Ala Leu Gln
                        215
Leu Ala Gln Lys Asn Gly Ile Ser Pro Asn Ile Gly Ile Ser Ser Arg
225
                    230
                                        235
Lys Thr Trp Ser Ser Phe Thr Phe Leu Lys Tyr Asp Ala Thr Leu Asp
                245
                                    250
Arg Lys Leu
```

<210> 167 <211> 5307 <212> DNA

<213> Homo Sapiens

<400> 167

```
gaataacagt taagttttgg ggagtaaaaa ctgtttcaat ttttgactgt gttgggggtt
                                                                      60
ggtgetecta atccctgtgt tgttaaaggg tegactatat tgtatttttg aaaattgcta
                                                                      120
gagagtggac gtaaagtgtt ctcactaaac aaattataac tatgtgaggt agtgcatata
                                                                      180
ttaagtagct agatttggtc attccacaat gtatatgtac ttcaaaacat catgttqtac
                                                                      240
atgagaaaca cagttttatc tgttagtcag ttttaaaaaat aaaaaatatt ccaactagaa
                                                                      300
actotyttyt agtttttgaa attacaactt ggaggettty aggaactgat tagaagtete
                                                                      360
ctttctgttt caggetttca tatccaaacc atagatcttt agaagtaaca tctgttaatt
                                                                      420
aattattaat aaatagtttg agtotttatt aattoatgga taacttgace attttetoto
teettttget tagataatee cagateatgg cegggeacag tageteaege etgtatteee
agcagtttgg gaggccgagg caggcagatc acttgaactc aggagtttga gaccagcttg
                                                                      600
ggcaacatgg caaaaccctg tctctattaa aaatacaaaa attagctggg catggtagtg
                                                                      660
catgodtgta gtoccagota cotgggaggo tgaggtggga ggatcgottg agcotgggag
gttgaggett etgtgegega tgattgetee agtgateaeg ceattgeaet eeageetggg
                                                                      780
tgacagagtg agaccctgtc tccaaaaaaa aaaaaaatta agcaagtagc agttacaaga
                                                                      840
ccaaaagtta ttttcctttt ttttttctc tataaaattg cccatttgga ccaaatctag
ttataactta tttcagtgtc attaagaaag ttgatgaata agtcatatta ctcagatgtt
                                                                     960
agtagctatg catttattaa tagttttatt tataagtatt tagtttcact ctgttgcaga
                                                                    1020
ctattttatg ctaaaattag ctaaagccaa attactattt cttaaaacat atttttact
                                                                     1080
ttttttttt ttttaaatat tattaggtac ttcttgcaag ggatatgcat tagcacatac
                                                                     1140
tcaagaaggg gaagaaaaga agcaaacttc tggtacatca aataccagag gatcaagacg
                                                                     1200
aaaacetgca atgacaacte ctacaaggag gtctacacgt aacacaagag ctgaaacage
                                                                    1260
cagtcagtct cagagatccc caatatcaga caattctggg tgtgatgccc caggtaacag
                                                                    1320
taatccatct ttaagtgttc cctcttcagc tgagtcagaa aagcaaacaa qacaqqctcc
                                                                    1380
aaaacggaag tetgtaagaa gaggaagaaa accacettta etgaaaaaga aactteggag
                                                                    1440
ctctgtagct gcccctgaaa aatcatcttc caatgattca gtagatgaag aaacagcaga
atctgacaca tcacctgtgt tagaaaaaga gcaccaacca gatgtagaca gtagtaacat
                                                                     1560
ttgtactgtg cagactcatg tagaaaacca gtctgctaat tgcttgaaaa gttgcaatga
                                                                    1620
gcaaatagaa gaaagtgaga agcatactgc aaattatgat acagaggaaa gagtaggatc
ttcatcttct gagtcttgtg ctcaagatct tcctgtgcta gttggtgagg aaggggaagt
taaaaaactc gagaatacag gtatagaggc taatgttttg tgtttggaaa gtgagatttc
                                                                    1800
tgaaaatatt cttgaaaaag gaggtgatcc attggaaaag caagaccaga tatctggact
ttcacaatca gaggtaaaga cagatgtatg tacagttcat cttccaaatg attttcctac
                                                                    1920
atgtttaaca totgaaagca aagtgtacca acctgtatot tgtcccctaa gtgacttato
                                                                    1980
```

```
tgagaatgta gagtcagtgg ttaatgaaga aaaaataaca qaqaqttccc taqtagaaat
                                                                     2040
tactgaacat aaagatttta cactaaaaac agaggagett atagagagec ccaagttaga
                                                                     2100
atcttctgag ggtgaaatta tacagacagt ggacagacaa tctgttaaga gcccagaqqt
                                                                    2160
tcaattgctt gggcatgttg aaactgaaga tgtagaaata attgcaacat gtgatacttt
                                                                    2220
tgggaatgaa gatttcaata atattcaaga ctctgaaaat aacttactaa aaaataatct
                                                                     2280
tetgaacace aaattggaaa aatetttaga agaaaagaat gaategetga eegaacatee
                                                                    2340
tagatctaca gagttgccta aaacacacat tgaacagatt cagaagcatt ttagtqaqqa
                                                                    2400
caacaatgaa atgataccta tggagtgtga ttcattttgc agtgaccaaa atgaatctga
                                                                    2460
agttgaacca totgtaaatg otgatottaa acaaatgaat qaaaattotq tqacacactq
                                                                    2520
ttetgaaaat aatatgeegt ettetgatet tgeggatgaa aaggttgaaa etgtttetea
                                                                    2580
accatctgaa agcccaaaag ataccataga taaaaccaaa aagcctcgta ctcgaagatc
tagatttcat tetecateta caacttggte acceaacaaa gacactecae aagaaaaqaa
                                                                    2700
geggeeeeag tetecatete eeagaagaga aactgggaaa gaaageagga agteteaate
                                                                    2760
accateteet aagaatgagt cagecagagg ceggaaaaaa teeegttete agteeccaaa
                                                                    2820
aaaggatatt gcaagagaaa ggaggcaatc tcagtctcgg tctccaaaaa gggatactac
                                                                    2880
tagggaaagc agaagatctg aatcactgtc cccaagaaga gaaacttcta gagagaacaa
                                                                    2940
aagateteag ccaagagtga aagattette eccaggagaa aaateeaggt eccagageag
                                                                    3000
agaacgagaa agtgatagag atgggcagag gagagagaga gaaaggagaa ccagaaagtg
                                                                    3060
gtetaggtee agateteatt etaggteece eteaagatgt agaacaaaaa gtaagagtte
                                                                    3120
atcatttggt agaattgaca gagatagtta eteteecegg tggaagggaa gatqqqcaaa
                                                                    3180
tgatggttgg agatgtccac gaggaaatga tcggtacaga aagaatgacc cagagaaaca
                                                                    3240
gaatgaaaat acaagaaaag aaaaaaatga catccatcta gatgctgatg atccaaattc
                                                                    3300
tgctgacaaa catagaaatg actgtcccaa ttggataaca qaaaaaataa actctgggcc
                                                                    3360
tgatccaaga accagaaatc cagaaaagtt gaaagagtct cattgggaag aaaatagaaa
                                                                    3420
tgaaaattca ggaaattctt ggaataaaaa ctttggttct ggttgggtat ctaaccgtgg
                                                                    3480
tagaggcaga ggcaaccgtg gcagaggcac ttacagaagt agttttgcct ataaagatca
                                                                    3540
gaatgaaaat cggtggcaaa atcgaaaacc cctctcaggg aattcaaaca gttcagggag
                                                                    3600
tgaatettte aagtttgtgg aacagcaate etataagega aaaagtgaac aggagttete
                                                                    3660
atttgataca ccagcagata gatctggatg gacatctgca tccagctggg ccgtgagaaa
                                                                    3720
gaetttgeca geagatgtae aaaactaeta etcaegaega ggeagaaatt etteaggtee
                                                                    3780
acagtetgga tggatgaaac aagaggagga aacatetgga caggatteta geetaaaaga
                                                                    3840
ccaaacaaac cagcaagttg atggttctca gctacctata aatatgatgc aaccgcaaat
                                                                    3900
gaatgtaatg cagcaacaaa tgaatgcaca acaccagcct atgaatatct teccatatee
                                                                    3960
agtgggtgtt catgeteett tgatgaacat ccaacgcaat ccatttaaca ttcateetca
                                                                    4020
getaccettg catetecaca caggagtgcc ceteatgcag gtagecacte etaccagtgt
                                                                    4080
ateteaggga etaceaceae caccacece teccecacea teccaacaag teaactacat
                                                                    4140
tgetteacaa ecagatggaa ageaattgea gggtatteet agttettete atgtaagtaa
                                                                    4200
taacatgagt acaccagttt tgcctgctcc gacagcagcc ccaggaaata cgggaatggt
                                                                    4260
tcagggacca agttctggta atacttcgtc atcaagtcac agcaaagcct ctaatgctgc
                                                                    4320
tgtaaaattg gcagaaagca aagtaagtgt tgcagtggaa gccagcgcag atagctcgaa
                                                                    4380
gacagacaag aaattgcaaa ttcaagaaaa agcagcacaa gaggtaaaat tggccatcaa
                                                                    4440
gccattttac caaaataaag atatcaccaa ggaagaatat aaagaaattg tacggaaagc
                                                                    4500
agtagataaa gtttgtcata gtaagagtgg agaagtaaat tctactaaag tggcaaatct
                                                                    4560
ggttaaagcc tatgtagaca aatacaaata ttcacggaag gggagccaaa agaaaactct
                                                                    4620
ggaagaacct gtgtctactg aaaaaaacat aggctgaaat ggggaacgct gtcaaggaca
                                                                    4680
ttatcaggat atctgcaaag tgcaatttca acatgtacca ttaactgaaa atcatacata
                                                                    4740
actgtgattg aaatttggtt ttgataaaat tattttttta acataggata tgatgttttg
                                                                    4800
ttetaaataa atataggtet geaetgeaac ttetgtatee tteetteeec teeaceetee
                                                                    4860
cccacaaaat tcaagggaaa gtaaagggtt taaaggaatg tgcatcttta ctaggactgt
                                                                    4920
gttatagtgt ggatactgga aaatgtatag ctttttgatt agggcaatgg agtgcataaa
                                                                    4980
ttagaaactt ctaagtgcac tggttttcaa agagatatat ataatgcatt tattctgtca
                                                                    5040
ggttaaaata taaagtatga totttatgat tttttccctc taattataga aagttaaata
                                                                    5100
atgtattacc atgaaaaatg tttctaatat taaatagaac atatcagttg caaagttcct
                                                                    5160
aatgtgtatt tttaaagcac atatctgaat aaattgccta gatagaaaaa aaattatcac
                                                                    5220
gagtaaaatt tagtgttcaa aacattgaaa cactcttcac ctattgtatg accaaataaa
```

ggttatgctg cttgttacgc gaaggcc

<210> 168 <211> 1148 5307

<212> PRT <213> Homo Sapiens <400> 168 Met Thr Thr Pro Thr Arg Arg Ser Thr Arg Asn Thr Arg Ala Glu Thr 5 Ala Ser Gln Ser Gln Arg Ser Pro Ile Ser Asp Asn Ser Gly Cys Asp 25 Ala Pro Gly Asn Ser Asn Pro Ser Leu Ser Val Pro Ser Ser Ala Glu 40 Ser Glu Lys Gln Thr Arg Gln Ala Pro Lys Arg Lys Ser Val Arg Arg 55 Gly Arg Lys Pro Pro Leu Leu Lys Lys Leu Arg Ser Ser Val Ala 70 75 Ala Pro Glu Lys Ser Ser Ser Asn Asp Ser Val Asp Glu Glu Thr Ala 85 90 Glu Ser Asp Thr Ser Pro Val Leu Glu Lys Glu His Gln Pro Asp Val 100 105 Asp Ser Ser Asn Ile Cys Thr Val Gln Thr His Val Glu Asn Gln Ser 120 Ala Asn Cys Leu Lys Ser Cys Asn Glu Gln Ile Glu Glu Ser Glu Lys 135 140 His Thr Ala Asn Tyr Asp Thr Glu Glu Arg Val Gly Ser Ser Ser 150 155 Glu Ser Cys Ala Gln Asp Leu Pro Val Leu Val Gly Glu Glu Gly Glu 165 170 Val Lys Lys Leu Glu Asn Thr Gly Ile Glu Ala Asn Val Leu Cys Leu 185 Glu Ser Glu Ile Ser Glu Asn Ile Leu Glu Lys Gly Gly Asp Pro Leu 195 200 Glu Lys Gln Asp Gln Ile Ser Gly Leu Ser Gln Ser Glu Val Lys Thr 215 220 Asp Val Cys Thr Val His Leu Pro Asn Asp Phe Pro Thr Cys Leu Thr 230 Ser Glu Ser Lys Val Tyr Gln Pro Val Ser Cys Pro Leu Ser Asp Leu 250 245 Ser Glu Asn Val Glu Ser Val Val Asn Glu Glu Lys Ile Thr Glu Ser 265 Ser Leu Val Glu Ile Thr Glu His Lys Asp Phe Thr Leu Lys Thr Glu 280 Glu Leu Ile Glu Ser Pro Lys Leu Glu Ser Ser Glu Gly Glu Ile Ile 295 300 Gln Thr Val Asp Arg Gln Ser Val Lys Ser Pro Glu Val Gln Leu Leu 310 315 Gly His Val Glu Thr Glu Asp Val Glu Ile Ile Ala Thr Cys Asp Thr 325 330 Phe Gly Asn Glu Asp Phe Asn Asn Ile Gln Asp Ser Glu Asn Asn Leu 345

Leu Lys Asn Asn Leu Leu Asn Thr Lys Leu Glu Lys Ser Leu Glu Glu

360 365 Lys Asn Glu Ser Leu Thr Glu His Pro Arg Ser Thr Glu Leu Pro Lys 375 Thr His Ile Glu Gln Ile Gln Lys His Phe Ser Glu Asp Asn Asn Glu 390 395 Met Ile Pro Met Glu Cys Asp Ser Phe Cys Ser Asp Gln Asn Glu Ser 405 410 Glu Val Glu Pro Ser Val Asn Ala Asp Leu Lys Gln Met Asn Glu Asn 420 425 Ser Val Thr His Cys Ser Glu Asn Asn Met Pro Ser Ser Asp Leu Ala 440 Asp Glu Lys Val Glu Thr Val Ser Gln Pro Ser Glu Ser Pro Lys Asp 455 Thr Ile Asp Lys Thr Lys Lys Pro Arg Thr Arg Arg Ser Arg Phe His 470 475 Ser Pro Ser Thr Thr Trp Ser Pro Asn Lys Asp Thr Pro Gln Glu Lys 485 490 Lys Arg Pro Gln Ser Pro Ser Pro Arg Arg Glu Thr Gly Lys Glu Ser 505 Arg Lys Ser Gln Ser Pro Ser Pro Lys Asn Glu Ser Ala Arg Gly Arg 520 Lys Lys Ser Arg Ser Gln Ser Pro Lys Lys Asp Ile Ala Arg Glu Arg 535 540 Arg Gln Ser Gln Ser Arg Ser Pro Lys Arg Asp Thr Thr Arg Glu Ser 550 555 Arg Arg Ser Glu Ser Leu Ser Pro Arg Arg Glu Thr Ser Arg Glu Asn 565 570 Lys Arg Ser Gln Pro Arg Val Lys Asp Ser Ser Pro Gly Glu Lys Ser 585 Arg Ser Gln Ser Arg Glu Arg Glu Ser Asp Arg Asp Gly Gln Arg Arg 600 605 Glu Arg Glu Arg Arg Thr Arg Lys Trp Ser Arg Ser Arg Ser His Ser 615 620 Arg Ser Pro Ser Arg Cys Arg Thr Lys Ser Lys Ser Ser Ser Phe Gly 630 635 Arg Ile Asp Arg Asp Ser Tyr Ser Pro Arg Trp Lys Gly Arg Trp Ala 650 Asn Asp Gly Trp Arg Cys Pro Arg Gly Asn Asp Arg Tyr Arg Lys Asn 660 665 Asp Pro Glu Lys Gln Asn Glu Asn Thr Arg Lys Glu Lys Asn Asp Ile 680 685 His Leu Asp Ala Asp Asp Pro Asn Ser Ala Asp Lys His Arg Asn Asp 695 700 Cys Pro Asn Trp Ile Thr Glu Lys Ile Asn Ser Gly Pro Asp Pro Arg 710 715 Thr Arg Asn Pro Glu Lys Leu Lys Glu Ser His Trp Glu Glu Asn Arg 725 730 Asn Glu Asn Ser Gly Asn Ser Trp Asn Lys Asn Phe Gly Ser Gly Trp 745 Val Ser Asn Arg Gly Arg Gly Arg Gly Asn Arg Gly Arg Gly Thr Tyr 760 Arg Ser Ser Phe Ala Tyr Lys Asp Gln Asn Glu Asn Arg Tro Gln Asn 775 Arg Lys Pro Leu Ser Gly Asn Ser Asn Ser Ser Gly Ser Glu Ser Phe 790

Lys	Phe	Val	Glu		Gln	Ser	Tyr		Arg		Ser	Glu	Gln	Glu	Phe
				805					810					815	
Ser	Phe	Asp	Thr	Pro	Ala	Asp	Arg	Ser	Gly	Trp	Thr	Ser	Ala	Ser	Ser
			820					825					830		
Trp	Ala	Val	Arq	Lvs	Thr	Leu	Pro	Ala	Asp	Val	Gln	Asn	Tur	Tyr	Ser
_		835	_	-			840					845	-2-	-1-	
Δrα	Arm		Ara	Nen	car	Sar		Dwo	Gln		C1		Mak	T	a1
	850				501	855	OLY	110	GIII	Der	860	пр	Mec	цуь	GI1.
a 2		~ 3	m1				_	_	_	_					
	GIU	GIU	Thr	ser		GIn	Asp	Ser	Ser			Asp	Gln	Thr	
865					870					875					880
Gln	Gln	Val	Asp	Gly	Ser	Gln	Leu	Pro	Ile	Asn	Met	Met	Gln	Pro	Gln
				885					890					895	
Met	Asn	Val	Met	Gln	Gln	Gln	Met	Asn	Ala	Gln	His	Gln	Pro	Met	Asn
			900					905					910		
Ile	Phe	Pro	Tvr	Pro	Val	Glv	Val	His	Ala	Pro	Len	Met		Tle	Gln
		915	-			2	920					925			
Δνα	Aen		Dhe	Zen	Tlo	Hie		C1 2	Leu	Dro	T 011		T	***	m)
9	930		2 110	ADII	116	935	FIO	GIII	пец	FIO		nis	ren	nis	THE
aa		D	.	34-4-	G2				_	_,	940		_		
	val	Pro	Leu	Met		val	Ala	Thr	Pro			Val	Ser	Gln	
945					950					955					960
Leu	Pro	Pro	Pro		Pro	Pro	Pro	Pro	Pro	Ser	Gln	Gln	Val	Asn	Tyr
				965					970					975	
Ile	Ala	Ser	Gln	Pro	Asp	Gly	Lys	Gln	Leu	Gln	Gly	Ile	Pro	ser	Ser
			980					985					990		
Ser	His	Val	Ser	Asn	Asn	Met	Ser	Thr	Pro	Val	Leu	Pro	Ala	Pro	Thr
		995					1000					1009			
Ala	Ala	Pro	Glv	Asn	Thr	Glv	Met	Val	Gln	Glv	Pro	Ser	Ser	Glv	Δen
	1010		-			101					1026		002		
Thr			Ser	Ser	Hie			7.7 9	Ser				1701	T	т
1025			001	001	103		шуз	Ата	261	103		мта	val	ьуѕ	
		e - =	T	7707			33-	**- 1	Glu				_	_	104
Ala	GIU	ser	Lys			Val	Ата				ser	Ala			
_	_,	_	_	104			_		105					1055	
Lys	Thr	Asp			Leu	GIn	Ile		Glu	Lys	Ala	Ala	Gln	Glu	Val
			106					106					1070		
Lys	Leu	Ala	Ile	Lys	Pro	Phe	Tyr	Gln	Asn	Lys	Asp	Ile	Thr	Lys	Glu
		107	5				108	כ				1089	5		
Glu	Tyr	Lys	Glu	Ile	Val	Arg	Lys	Ala	Val	Asp	Lys	Val	Cvs	His	Ser
	109					109					110		-		
Lvs	ser	Glv	Glu	Val	Asn	Ser	Thr	Lvs	Val				Val	Tare	27 =
1109					111			-1-		111			var	272	112
Tyr	Val	Aen	Lave	There			car	7.~~	Lys			G1 m	T	T	
- 1 -	vul	r.sp	Lys	112		TYL	Ser		113		Ser	GIII	ьуѕ		
T 033	C1.,	G1	D			m\	63				-			1135	>
neu	GIU	GLU			ser	inr	GIU		Asn	тlе	Gly				
			114	U				114	5						
	< 2	210>	169												

<211> 597

<212> DNA <213> Homo Sapiens

<400> 169

gagactttta atcatctatc ccttgtgctt tacgcagacc ctacaataca ctagaggctt caaagaggtc aaaaattcac atgtgtagac aaattaggtc ccttaagatg ccaggcaaac gaagtgctac caaaacacgc aatgactgtc ctaaaagtgc gttctgggat acacctgtaa acttggatca agttccctcc cctctcctca aaatatatcg acttgtgctg aaagaaatca

60

120

180

```
cgaccgatgc tcacaattct gacctcgtaa ttatataggg ggtggttttg gtttctqcqt
                                                                      300
ctttccctga ttcagtggca ggtaacatat ttcatgtaca aaatgaactg caacaccacg
                                                                      360
gcaaacaagg gacaggccct caaagttgtc ggtagggagc caggaccccg ccagtggcgt
                                                                      420
ggggagacac cgtactaaac aagettgeaa acageaggea cetteetgee actgaggagg
                                                                      480
aagggctggc taagggaggc cggggcggag gaagccaagc tetgcaggcc ctgacaaaqt
                                                                      540
cctcccggcc tccacgcgtc gccatggcaa cgcggggtct gtgctgcccg ggattqq
                                                                      597
      <210> 170
      <211> 3344
      <212> DNA
      <213> Homo Sapiens
      <400> 170
ggtacagetg egegtetgeg ggaataggtg cagegggece ttggeggggg actetgaggg
                                                                       60
aggagetggg gaeggegaee etaggagagt tetttggggt gaettteaag atggaeteta
                                                                      120
ctctaacagc aagtgaaatc cggcagcgat ttatagattt cttcaagagg aacgagcata
                                                                      180
egtatgitea etegicigee accateceat tggatgacee caettigete titigecaatg
                                                                      240
caggcatgaa ccagtttaaa cccattttcc tgaacacaat tgacccatct caccccatgg
                                                                      300
caaagctgag cagagctgcc aatacccaga agtgcatccg ggctgggggc aaacaaaatg
                                                                      360
acctggacga tgtgggcaag gatgtctatc atcacacctt cttcgagatg ctgggctctt
                                                                      420
ggtcttttgg agattacttt aaggaattgg catgtaagat ggctctggaa ctcctcaccc
aagagtttgg cattcccatt gaaagacttt atgttactta ctttggcggg gatgaagcag
                                                                      540
ctggcttaga agcagatctg gaatgcaaac agatctggca aaatttgggg ctggatgaca
                                                                      600
ccaaaatcet cccaggcaac atgaaggata acttetggga gatgggtgac acgggcccet
                                                                      660
gtggtccttg cagtgagatc cactacgacc ggattggtgg tcgggacgcc gcacatcttg
                                                                      720
tcaaccagga cgaccctaat gtgctggaga tctggaacct tgtgttcatc cagtataaca
                                                                      780
gggaagctga tggcattctg aaacctcttc ccaagaaaag cattgacaca gggatggcc
                                                                      840
tggaacgact ggtatctgtg ctgcagaata agatgtccaa ctatgacact gacctttttg
                                                                      900
teeettaett tgaageeatt cagaagggea caggtgeeeg accatacact gggaaagttg
                                                                      960
gtgctgagga tgccgatggg attgacatgg cctaccgggt gctggctgac catgctcgga
                                                                     1020
ccatcactgt ggcactggct gatggtggcc ggcctgacaa cacagggcgt ggatatgtgt
                                                                     1080
tgagacggat tctccgccga gctgtccgat acgcccatga aaagctcaat gccagcaggg
                                                                     1140
gettetttge tacgttagtg gatgttgteg tecagteeet gggagatgea ttteetgage
                                                                     1200
tgaagaagga cccagacatg gtgaaggaca tcattaatga agaagaggtg cagtttctca
                                                                     1260
agactctcag cagaggggt cgcatcctgg acaggaaaat tcagagcctg ggagacagca
                                                                     1320
agaccattcc cggagacact gcttggctcc tctatgacac ctatgggttt ccagtggatc
                                                                     1380
tgactggact gattgctgaa gagaagggcc tggtggtaga catggatggc tttgaagagg
                                                                     1440
agaggaaact ggcccagctg aaatcacagg gcaagggagc tggtggggaa gacctcatta
                                                                     1500
tgctggacat ttacgctatc gaagagctcc gggcacgggg tctggaggtc acagatgatt
                                                                     1560
ccccaaagta caattaccat ttggactcca gtggtagcta tgtatttgag aacacagtgg
                                                                     1620
ctacggtgat ggctctgcgc agggagaaga tgttcgtgga agaggtgtcc acaggccagg
                                                                     1680
agtgtggagt ggtgetggac aagacetgtt tetatgetga geaaggagge cagatetatg
                                                                     1740
acgaaggeta cetggtgaag gtggatgaca geagtgaaga taaaacaqag tttacagtga
                                                                     1800
agaatgctca ggtccgagga gggtatgtgc tacacattgg aaccatctac ggtgacctga
                                                                     1860
aagtggggga tcaggtctgg ctgtttattg atgagccccg acgaagaccc atcatgagca
                                                                     1920
accacacage tacgcacatt etgaactteg ceetgegete agtgettggg gaagetgace
                                                                     1980
agaaaggete attggttget eetgacegee teagatttga etttaetgee aagggageea
                                                                     2040
tgtccaccca acagatcaag aaggctgaag agattgctaa tgagatgatt gaggcagcca
                                                                     2100
aggeogteta tacccaggat tgccccctgg cagcagcgaa agccatccag ggcctacqqq
                                                                     2160
ctgtgtttga tgagacctat cctgaccctg tgcgagtcgt ctccattggg gtcccqqtqt
                                                                     2220
cogagttgct ggatgacccc totgggcctg ctggctccct gacttctgtt gagttctgtg
                                                                     2280
ggggaacgca cctgcggaac tcgagtcatg caggagcttt tgtgatcgtg acggaagaag
                                                                     2340
ccattgccaa gggtatccgg aggattgtgg ctgtcacagg tgccgaggcc cagaaggccc
                                                                     2400
tcaggaaagc agagagcttg aagaaatgtc tctctgtcat ggaagccaaa gtgaaggctc
                                                                     2460
agactgetee aaacaaggat gtgcagaggg agategetga cettggagag gecetggeea
                                                                     2520
```

ctgcagtcat cccccaqtqq cagaaqqatq aattqcqqqa qactctcaaa tccctaaaqa 2580 aggtcatgga tgacttggac cgagccagca aagccgatgt ccagaaacga gtgttagaga 2640 agacgaagca gttcatcgac agcaacccca accagcetet tgtcatectg gagatggaga 2700 geggegeete agecaaggee etgaatgaag eettgaaget etteaagatg eacteceete 2760 agacttotgo catgototto acggtggaca atqaqqotqq caaqatcacq tqcctqtqtc aagtccccca gaatgcagcc aatcggggct taaaaqccag cgagtgggtg cagcaggtgt 2880 caggettgat ggacggtaaa ggtggtggca aggatgtgte tgeacaggee acaggeaaqa acgttggctg cctgcaggag gcgctgcagc tggccacttc cttcqcccaq ctqcqcctcq gggatgtaaa gaactgagtg gggaaggagg aggeteecac tggateeate egteeageea 3060 agagetette atetgetaca agaacatttg aatettggga eetttaaaga geeeeteeta 3120 acccagcagt aactggaaca cacttgggag cagtcctatg tetcagtgcc cettaaattt 3180 ctgccctgag ccctccacgt cagtgccatc ggtctagaac cactaacccc gcattgctgt 3240 tgatcgtcac gctcgcatct atagataacg gctctccaga cctgagcttt ccgcgtcagc 3300 aagtaggaat cgtttttgct gcagagaata aaaggaccac gtgc 3344

<210> 171 <211> 1004 <212> PRT

<213> Homo Sapiens

<400> 171

Tyr Ser Cys Ala Ser Ala Gly Ile Gly Ala Ala Gly Pro Trp Arg Gly 1 5 10 Thr Leu Arg Glu Glu Leu Gly Thr Ala Thr Leu Gly Glu Phe Phe Gly Val Thr Phe Lys Met Asp Ser Thr Leu Thr Ala Ser Glu Ile Arg Gln 35 40 Arg Phe Ile Asp Phe Phe Lys Arg Asn Glu His Thr Tyr Val His Ser Ser Ala Thr Ile Pro Leu Asp Asp Pro Thr Leu Leu Phe Ala Asn Ala 70 75 Gly Met Asn Gln Phe Lys Pro Ile Phe Leu Asn Thr Ile Asp Pro Ser 90 His Pro Met Ala Lys Leu Ser Arg Ala Ala Asn Thr Gln Lys Cys Ile 105 Arg Ala Gly Gly Lys Gln Asn Asp Leu Asp Asp Val Gly Lys Asp Val 120 125 Tyr His His Thr Phe Phe Glu Met Leu Gly Ser Trp Ser Phe Gly Asp 135 Tyr Phe Lys Glu Leu Ala Cys Lys Met Ala Leu Glu Leu Leu Thr Gln 150 155 Glu Phe Gly Ile Pro Ile Glu Arg Leu Tyr Val Thr Tyr Phe Gly Gly 165 170 Asp Glu Ala Ala Gly Leu Glu Ala Asp Leu Glu Cys Lys Gln Ile Trp 185 Gln Asn Leu Gly Leu Asp Asp Thr Lys Ile Leu Pro Gly Asn Met Lys 200 205 Asp Asn Phe Trp Glu Met Gly Asp Thr Gly Pro Cys Gly Pro Cys Ser 215 220 Glu Ile His Tyr Asp Arg Ile Gly Gly Arg Asp Ala Ala His Leu Val 230 235 Asn Gln Asp Asp Pro Asn Val Leu Glu Ile Trp Asn Leu Val Phe Ile 250 Gln Tyr Asn Arg Glu Ala Asp Gly Ile Leu Lys Pro Leu Pro Lys Lys 260 265

```
Ser Ile Asp Thr Gly Met Gly Leu Glu Arg Leu Val Ser Val Leu Gln
                           280
Asn Lys Met Ser Asn Tyr Asp Thr Asp Leu Phe Val Pro Tyr Phe Glu
                      295
                                          300
Ala Ile Gln Lys Gly Thr Gly Ala Arg Pro Tyr Thr Gly Lys Val Gly
                   310
                                      315
Ala Glu Asp Ala Asp Gly Ile Asp Met Ala Tyr Arg Val Leu Ala Asp
                                  330
               325
His Ala Arg Thr Ile Thr Val Ala Leu Ala Asp Gly Gly Arg Pro Asp
           340
                              345
Asn Thr Gly Arg Gly Tyr Val Leu Arg Arg Ile Leu Arg Arg Ala Val
Arg Tyr Ala His Glu Lys Leu Asn Ala Ser Arg Gly Phe Phe Ala Thr
                      375
                                          380
Leu Val Asp Val Val Val Gln Ser Leu Gly Asp Ala Phe Pro Glu Leu
                   390
                                      395
Lys Lys Asp Pro Asp Met Val Lys Asp Ile Ile Asn Glu Glu Glu Val
               405
                                  410
Gln Phe Leu Lys Thr Leu Ser Arg Gly Arg Arg Ile Leu Asp Arg Lys
           420
                              425
Ile Gln Ser Leu Gly Asp Ser Lys Thr Ile Pro Gly Asp Thr Ala Trp
                           440
                                              445
Leu Leu Tyr Asp Thr Tyr Gly Phe Pro Val Asp Leu Thr Gly Leu Ile
                       455
Ala Glu Glu Lys Gly Leu Val Val Asp Met Asp Gly Phe Glu Glu Glu
                   470
                                       475
Arg Lys Leu Ala Gln Leu Lys Ser Gln Gly Lys Gly Ala Gly Glu
               485
                                  490
Asp Leu Ile Met Leu Asp Ile Tyr Ala Ile Glu Glu Leu Arg Ala Arg
                              505
Gly Leu Glu Val Thr Asp Asp Ser Pro Lys Tyr Asn Tyr His Leu Asp
       515
                           520
Ser Ser Gly Ser Tyr Val Phe Glu Asn Thr Val Ala Thr Val Met Ala
                       535
                                          540
Leu Arg Arg Glu Lys Met Phe Val Glu Val Ser Thr Gly Gln Glu
                  550
                                      555
Cys Gly Val Val Leu Asp Lys Thr Cys Phe Tyr Ala Glu Gln Gly Gly
                565
                                   570
Gln Ile Tyr Asp Glu Gly Tyr Leu Val Lys Val Asp Asp Ser Ser Glu
                               585
Asp Lys Thr Glu Phe Thr Val Lys Asn Ala Gln Val Arg Gly Gly Tyr
                           600
Val Leu His Ile Gly Thr Ile Tyr Gly Asp Leu Lys Val Gly Asp Gln
                       615
                                           620
Val Trp Leu Phe Ile Asp Glu Pro Arg Arg Pro Ile Met Ser Asn
                   630
                                      635
His Thr Ala Thr His Ile Leu Asn Phe Ala Leu Arg Ser Val Leu Gly
               645
                                   650
Glu Ala Asp Gln Lys Gly Ser Leu Val Ala Pro Asp Arg Leu Arg Phe
                               665
Asp Phe Thr Ala Lys Gly Ala Met Ser Thr Gln Gln Ile Lys Lys Ala
                           680
Glu Glu Ile Ala Asn Glu Met Ile Glu Ala Ala Lys Ala Val Tyr Thr
                       695
                                           700
Gln Asp Cys Pro Leu Ala Ala Ala Lys Ala Ile Gln Gly Leu Arg Ala
```

```
705
                   710
                                        715
Val Phe Asp Glu Thr Tyr Pro Asp Pro Val Arg Val Val Ser Ile Glv
               725
                                   730
Val Pro Val Ser Glu Leu Leu Asp Asp Pro Ser Gly Pro Ala Gly Ser
                                745
Leu Thr Ser Val Glu Phe Cys Gly Gly Thr His Leu Arg Asn Ser Ser
                           760
His Ala Gly Ala Phe Val Ile Val Thr Glu Glu Ala Ile Ala Lys Gly
                       775
Ile Arg Arg Ile Val Ala Val Thr Gly Ala Glu Ala Gln Lys Ala Leu
                   790
                                        795
Arg Lys Ala Glu Ser Leu Lys Lys Cys Leu Ser Val Met Glu Ala Lys
                                    810
Val Lys Ala Gln Thr Ala Pro Asn Lys Asp Val Gln Arg Glu Ile Ala
                               825
Asp Leu Gly Glu Ala Leu Ala Thr Ala Val Ile Pro Gln Trp Gln Lys
                           840
Asp Glu Leu Arg Glu Thr Leu Lys Ser Leu Lys Lys Val Met Asp Asp
                        855
Leu Asp Arg Ala Ser Lys Ala Asp Val Gln Lys Arg Val Leu Glu Lys
                   870
                                        875
Thr Lys Gln Phe Ile Asp Ser Asn Pro Asn Gln Pro Leu Val Ile Leu
                885
                                    890
Glu Met Glu Ser Gly Ala Ser Ala Lys Ala Leu Asn Glu Ala Leu Lys
                                905
Leu Phe Lys Met His Ser Pro Gln Thr Ser Ala Met Leu Phe Thr Val
        915
                            920
Asp Asn Glu Ala Gly Lys Ile Thr Cys Leu Cys Gln Val Pro Gln Asn
                                            940
Ala Ala Asn Arg Gly Leu Lys Ala Ser Glu Trp Val Gln Gln Val Ser
                    950
                                        955
Gly Leu Met Asp Gly Lys Gly Gly Lys Asp Val Ser Ala Gln Ala
                                    970
Thr Gly Lys Asn Val Gly Cys Leu Gln Glu Ala Leu Gln Leu Ala Thr
                                985
Ser Phe Ala Gln Leu Arg Leu Gly Asp Val Lys Asn
                            1000
```

<210> 172 <211> 659 <212> DNA

<213> Homo Sapiens

<400> 172

```
gcctgagcaa cgtctccgag caggcgctgg gctagaggcg ggtctcaacc agctactcat
tggaggcggg cttgagagcg gcggccaggg aggtgcggag cagcctcggc ggcggcqqcc
                                                                     120
gaaccaaccg agtcggatcc tgaccctaaa acctagtatt ttccacttgt tcatcaatat
ggaaaactca gattccaatg acaaaggaag tggtgatcag tctgcaqcac aqcqcaqaaq
tcagatggac cgattggatc gagaagaagc tttctatcaa tttgtaaata acctgagtga
                                                                     300
agaagattat aggcttatga gagataacaa tttgctaggc accccaggtg aaagtactga
ggaagagttg ctgagacgac tacagcaaat taaagaaggc ccaccaccgc aaaactcaga
                                                                     420
tgaaaataga ggaggagact cttcagatga tgtgtctaat ggtgactcta taatagactg
gcttaactct gtcagacaaa ctggaaatac aacaagaagt gggcaaagag gaaaccaatc
ttggagagca gtgagtcgga ctaatccaaa cagtgggtga tttcagattc agtttagaga
                                                                     600
taaatgttaa cccgtaataa tgggagccaa aattcagaga atgaaaatga qccatctgc
                                                                     659
```

<210> 173 <211> 192 <212> PRT <213> Homo Sapiens <400> 173

Pro Glu Gln Arg Leu Arg Ala Gly Ala Gly Leu Glu Ala Gly Leu Asn Gln Leu Leu Ile Gly Gly Gly Leu Glu Ser Gly Gly Gln Gly Gly Ala 20 30 Glu Gln Pro Arg Arg Arg Pro Asn Gln Pro Ser Arg Ile Leu Thr 40 Leu Lys Pro Ser Ile Phe His Leu Phe Ile Asn Met Glu Asn Ser Asp Ser Asn Asp Lys Gly Ser Gly Asp Gln Ser Ala Ala Gln Arg Arg Ser 70 Gln Met Asp Arg Leu Asp Arg Glu Glu Ala Phe Tyr Gln Phe Val Asn Asn Leu Ser Glu Glu Asp Tyr Arg Leu Met Arg Asp Asn Asn Leu Leu 105 Gly Thr Pro Gly Glu Ser Thr Glu Glu Glu Leu Leu Arg Arg Leu Gln 120 125 Gln Ile Lys Glu Gly Pro Pro Pro Gln Asn Ser Asp Glu Asn Arg Gly 135 140 Gly Asp Ser Ser Asp Asp Val Ser Asn Gly Asp Ser Ile Ile Asp Trp 145 150 155 Leu Asn Ser Val Arg Gln Thr Gly Asn Thr Thr Arg Ser Gly Gln Arg 165 170

Gly Asn Gln Ser Trp Arg Ala Val Ser Arg Thr Asn Pro Asn Ser Gly 180 185 <210> 174

<211> 610 <212> DNA

<213> Homo Sapiens

<400> 174

gtactggcat cagtcaatgt tctggagtga tttgggcccc gatgttggct atgaagctat tggtcttgtg gacagtagtt tgcccacagt tggtgttttt gcaaaaagcaa ctgcacaaga caaccccaaa tctgccacag agcagtcagg aactggtatc cgatcagaga gtgagacaga gtccgaggcc tcagaaatta ctattcctcc cagcaccccg gcagttccac aggctcccgt ccagggggag gactacggca aaggtgtcat cttctacctc agggacaaag tggtcgtggg gattgtgcta tggaacatct ttaaccgaat gccaatagca aggaagatca ttaaggacgg tgagcagcat gaagatctca atgaagtagc caaactattc aacattcatg aagactgaag ccccacagtg gaattggcaa acccactgca gcccctgaga ggaggtcgaa tqqqtaaaqq agcatttttt tattcagcag actttctctg tgtatgagtg tgaatgatca agtcctttgt gaatattttc aactatgtag gtaaattctt aatgttcnca tagtgaaata aattctgatt cttctaaaaa

190

120

180

240

300

360

420

480

540

600

610

<210> 175 <211> 138 <212> PRT

<213> Homo Sapiens

<400> 175

```
Tyr Trp His Gln Ser Met Phe Trp Ser Asp Leu Gly Pro Asp Val Gly
Tyr Glu Ala Ile Gly Leu Val Asp Ser Ser Leu Pro Thr Val Gly Val
                                25
Phe Ala Lys Ala Thr Ala Gln Asp Asn Pro Lys Ser Ala Thr Glu Gln
Ser Gly Thr Gly Ile Arg Ser Glu Ser Glu Thr Glu Ser Glu Ala Ser
Glu Ile Thr Ile Pro Pro Ser Thr Pro Ala Val Pro Gln Ala Pro Val
                    70
                                        75
Gln Gly Glu Asp Tyr Gly Lys Gly Val Ile Phe Tyr Leu Arg Asp Lys
                                    90
Val Val Val Gly Ile Val Leu Trp Asn Ile Phe Asn Arg Met Pro Ile
                                105
Ala Arg Lys Ile Ile Lys Asp Gly Glu Gln His Glu Asp Leu Asn Glu
                            120
Val Ala Lys Leu Phe Asn Ile His Glu Asp
                        135
      <210> 176
      <211> 805
      <212> DNA
      <213> Homo Sapiens
      <400> 176
gggacagcca agtctgtgac ttgcacgtac tcccctgccc tcaacaagat gttttgccaa
                                                                       60
ctggccaaga cctgccctgt gcagctgtgg gttgattcca cacccccgcc cggcacccgc
                                                                      120
gtccgcgcca tggccatcta caagcagtca cagcacatga cggaggttgt gaggcgctqc
                                                                      180
coccaccatg agegetgete agatagegat ggtetggece etceteagea tettateega
                                                                      240
gtggaaggaa atttgcgtgt ggagtatttg gatgacagaa acacttttcg acataqtqtq
                                                                      300
gtgqtgccct atgagccgcc tgaggttggc tctgactgta ccaccatcca ctacaactac
                                                                      360
atgtgtaaca gttcctgcat gggcggcatg aaccggaggc ccatcctcac catcatcaca
                                                                      420
ctggaagact ccagtggtaa tctactggga cggaacagct ttgaggtgcg tgtttgtgcc.
                                                                      480
tgtcctggga gagaccggcg cacagaggaa gagaatctcc gcaagaaagg ggagcctcac
                                                                      540
cacgaagctg cccccaggga gcactaagcg agcactgccc aacaacacca agctcctctc
cccagccaaa gaagaaanca ctggatngag aatatttcac cccttcanat tcgttgggcg
                                                                      660
tgagegette eganaatgtt eegaagaget gnaagaagge ettgggaact caaaggatge
                                                                      720
ccaaggettg ggaaaggage caangggggg gaancaangg getcaactne aagceaacet
                                                                      780
gaaagttcca aaaaangggt ccagt
                                                                      805
      <210> 177
      <211> 626
      <212> DNA
      <213> Homo Sapiens
      <400> 177
ctaatttgtc tgtttattcc cacaaggtag ccaggggtgg gggcgccgag ccaagcccag
                                                                       60
caggccatgg gaccttcctc cggcggggtg cacgctggat tttcgggtct gccccaccag
                                                                      120
caggtttgca ggcaggccgt catgagtgcc ggtggaaggc tccgagggcg tgggcagggg
                                                                      180
ctcgggcggg gccacacact tgtggagcta gaaatantgg ggcaggtcct tctctatcac
                                                                      240
caggggctcc tccatgggtc cgtagcgctt caccacgcag ccgttcttgt cgatgaggaa
                                                                      300
etgtgganan acggtgtcca aactgtgggg ccacccctgc aaggggctga ggctgccctt
                                                                      360
cetyteeget geccatetyg gecaeggety tygecaggyg aaactygtee cetaceece
                                                                      420
acagececet tacetttggt gaagtteeae ttgatggeae tggaaaanaa geacatggae
                                                                      480
gtgagegtee ccaggeagee ecceacagte eccaaagett gteetgtete caaggaggee
```

<210> 178 <211> 793 <212> DNA <213> Homo Sapiens <400> 178 <2022> DNA geggagaget gegtgtgetg ceceggage geggagaget gegtgtgtge cegtgtagage gegtgtagag geggaggtec cettataget gggaagaggt tegtgatagag gegtgagaaa geggagagaa 60 geggaggtet ggaagagggt cegtatatag geggaaaaaa agggeeggea geggacaacaa aggacgacaag 240 aaccaaatga geagagetty geagacetty geagacetty geagacetty 360 tctccaaat gaagagetty geagacetty geagacetty 320 cegagataa gaagageaag geactetty geagat 420 tctccaaat gaagagaaga gacttyty gagaagaag gecatetty gegaagaagaag 480 cegagata gaagagaaa gacteagat gecatecty g	anaaaggttg thagetteee eeggtheete cacangecac aanagecate tttaceccaa ggaggg	agtgccccca	aanccccccc	600 626
<212> DNA <213> Homo Sapiens <400> 178 gegegaget getyctycty cccceggcc gegeggetyg aaacggagg gegegetyg aaacggagg gegeggeggggggggggggggggggggggg	<210> 178			
<213> Homo Sapiens <400> 178 gcgcgaggtd gctgtdgtg cccceggcc gcggagtgd gcgcgaggcc cfggagagad 60 gcggaggtc gctgtdgtgd ccccaegagagagagagagagagagagagagagagagaga	<211> 793			
<pre><400> 178 gegcgaggct gctgctgctg cccccggccc gcgcggctgg aaacggagg gccgagccaa gcggcggccc ctcttatgct gggaggatgc tggaggatgc tggaggatgc tggaggatgc tggaggatgc tggaggatgc tggaggagatgc tggaggagatgc tggaggagatgc tggagagaaa gcgctgaaaag gggctgaaaa agggttgca aggaggaggaggaggaggaggaggaggaggaggaggag</pre>	<212> DNA			
Gegogagget Gettataet gagaagate tagaagatae tagaatae tagaagatae tagaaga	<213> Homo Sapiens			
geggeggecc ctcttatgt gygaagatg tggaggatg tggagatga eggetgeaaa gegetgaaga 120 aggaetgetg gygaagageg aggaetge eggeegg tgtepeaget ctggaagaaa aagtgttga 180 tcctcacega gygaagggetg ctgcttatec egeccaagea getgeagaaa aagtgttga 220 agcaacaagca geagcagcaag aggaetgeegg aggeeggeeg aggeegteec 3300 aacceagtgg cecegtgte gecagcetg ageeggeegg aggeeggeeg aggeegteec 360 tctccaacat gaagacegtg gactgtytgg agegeagge caagatcaag gaactgeact tctggaagatga 240 tctccaacat gaagacegg gatgtytyg agegeagge aggeagteaa 260 tctccaacat gaagacegg gatgtytyg agegeagge aggeagteaa 260 tctccaacat gaagacegg gatgtgtge aggeagacag 260 tctccaacat gaagacegg getgeagata 260 tctccaacat gaagacegg getgeagatg gygagtaca 260 tctccaacat gaagacegg gygagtaca 260 tctccaacat gaagacegg gygagtaca 260 tctccaacat gaagacegg acctggtee aggancagge 260 tcggagatea gygaggatg gygagtaca 260 tcaacgeggea gaagacega 260 tcaacgeggea gaagacega 260 tcaacgegea gaagacega 260 tcaacgegea caagececa 260 tcaacgegea caagecegg 260 acceaanaac nct 260 179 179 179 179 210> 179 211> 786 212> DNA 213> Homo Sapiens 180 180 2210> 179 aatatcagag ttttaatte 260 aaagtateat 260 aagattacat 160 aagaadat 260 tcaacgagat 260 tcaacgagata 260 tcaa				
geggeggecc ctcttatgt gygaagatg tggaggatg tggagatga eggetgeaaa gegetgaaga 120 aggaetgetg gygaagageg aggaetge eggeegg tgtepeaget ctggaagaaa aagtgttga 180 tcctcacega gygaagggetg ctgcttatec egeccaagea getgeagaaa aagtgttga 220 agcaacaagca geagcagcaag aggaetgeegg aggeeggeeg aggeegteec 3300 aacceagtgg cecegtgte gecagcetg ageeggeegg aggeeggeeg aggeegteec 360 tctccaacat gaagacegtg gactgtytgg agegeagge caagatcaag gaactgeact tctggaagatga 240 tctccaacat gaagacegg gatgtytyg agegeagge aggeagteaa 260 tctccaacat gaagacegg gatgtytyg agegeagge aggeagteaa 260 tctccaacat gaagacegg gatgtgtge aggeagacag 260 tctccaacat gaagacegg getgeagata 260 tctccaacat gaagacegg getgeagatg gygagtaca 260 tctccaacat gaagacegg gygagtaca 260 tctccaacat gaagacegg gygagtaca 260 tctccaacat gaagacegg acctggtee aggancagge 260 tcggagatea gygaggatg gygagtaca 260 tcaacgeggea gaagacega 260 tcaacgeggea gaagacega 260 tcaacgegea gaagacega 260 tcaacgegea caagececa 260 tcaacgegea caagecegg 260 acceaanaac nct 260 179 179 179 179 210> 179 211> 786 212> DNA 213> Homo Sapiens 180 180 2210> 179 aatatcagag ttttaatte 260 aaagtateat 260 aagattacat 160 aagaadat 260 tcaacgagat 260 tcaacgagata 260 tcaa	gegegagget getgetgetg ecceeggeee gegeggetge	aaacggagag	gccgagccaa	60
1989 1999	geggeggeee etettatget gggaggatge tggagagtag	cggctgcaaa	gcgctgaagg	120
tecteacoga gaaaggstg etgettatec egeceaagea getgeaacae cageaggag 240 aaccacagtgg eccegetge gecagetee agecgegg aggeeggee gageegtee 360 aaccaatgg eccegetgte gecagetee agecgegg caagetaag gaactgaact 180 tetecaacat gaaagacegtg gactgtgtgg ageggaaggg caagatcaag gaactgaact 420 tetecaacat gaaagacegtg gactgtgtgg ageggaaggg caagacag gactgaaagg 480 teggaatcae getgaagat gtgeagtaca agaategtea gecaagaceg gagtgaaacg gactgaagag cactgatgtee agaacaagag cactgagaagg agactgaacg agacagaga cactgatgtee agaacaaga cectagaag gecaagacg agacagaga cactgatgaagagaacacg gecagageaga cacagagaca cacagacat taagactaa acceagacet caageccaa acceagacet taageacaa gecagageaga cacagageaga cacagagaca cacagagaca cacagagaca cacagagaca cacagagaca cacagagaca accegata taagactaa acceaanac net caageccaa acceaanac net caagetga cacaaaaag cacagagac taacatagaa taaatatcaa tagattacagag ttttaatta accagattagg tttttgaaaa taagattac tttttggaaa atggattaca taggattaaca acggattagg tttttgaaaa taagattac tttttggaaa atggtcaag actttettgaa atggtctaca ttcagaaadg tettaaaaaa aaaattacag tacatcatag tacatcatag cacagagaa tetteagaaaataga acaatagaaa tacaataaaa aaaataacaa tacaataaaaa acaataaaaaa tacaataaaa aaaattacag tacatcatag tettaaaaa aaagttett tgactgaaa agttecctga acaacaacaa ttgactgatgg aggagaga agagaattgc tttgattgat gaggagaa tgggggaa agagaattgc ttgactgaaa aggagagaa tgggggaa agagagaga acatgggggaa tacaatagaaa tgggtgetge agagagagaga agagagagagaa caggggggaga gagaactgg gggggggggg	agggcgtgct ggagaagcgc agcgacgggt tgttgcagct	ctggaagaaa	aagtgttgca	180
aacccastgg coccactgtc gccagctcg agccgcggt caagctcaag gaactgcact 1500 totocacaact gaagaccgtg gactgtytgg agcgcaaggg caagtacatg tacttcactg 420 tggtgatggc agaggcaag gagatcgact ttoggtgcc gcaagaccag ggctggaacg 480 ccaagcggca gaagcaag cactgtgcc agagacaag ggccagaccg 540 agccacgcggca gaagcaaga cactgtgcc agacaagcc gcaagcacg 600 agccgcagcc caagcccca acccaagcct tcaagcccaa gccctcgaag cgcaagccccaa actcaaacc ccaagcccc aacccaagccc tcaagccccaa cccaagccc tcaagccccaa cccaagccc caagccccaa acccaagacc caagcacgac caagacacaa nct 730 <pre></pre>	tecteacega ggaagggetg etgettatee egeceaagea	gctgcaacac	cagcagcagc	240
tctccaacat gaagaccts gactgtytgg agogcaaggg caagtacats tactcacts 420 tcgtgatgatgg agagggaaag gagatcaact tcggtcac gaagaccag ggctgaaacg 480 ccgagatcac gctgcagatg gtgcagtaca agaatcgtca ggccatccts gcgtgcaac 540 ccacgcgcca gaaccaccagcct caagcccca acccagcct tcaagcccca cccagcccca attcacaaac cccaagcccc caagcccca acccaagccc caagcccca acccaagccc caatcacaac ccaagcccc caagcccca acccaagccc caacccagccc caacccagccc caacccagccc caacccagccc caacccagccc caacccagcccca acccaagccc caacccagccc caacccagcccca acccaagccc caacccagcccc caacccagcccca acccaagccc caccaagccc caacccagccc caccaagcccc caccaagccccacaagccccaccaagccccaccaagcccccacca	agcaacagca gcagcagcag cagcaacaac agcccgggca	ggggccggcc	gagccgtccc	300
tggtgatggc agagggcaag gagatcgact tteggtgcc gcaagaccag ggctggaacg 480 ccgagatcac gctgcagatg gtcgataca agaatcgtca ggcatcctg gggtcaaat 540 ccacgcgcac gaagcaga cacctggtcc agcacctctg gcggcatcctg ggggcaact 600 agccgagtccaac ccaagcccca acccaagccc tcagcctcaa gccgcaacc ccaagcccca acccaagccc tcagcctcaa gccgcaacc ccaagcccca acccaagccc tcagcctcaa gccgcaacc ccaagcccca acccaagccc tcaagcccca tcagcccaac ccaagcccc tcagcccaacc ccaagcccca acccaagccc tcaagcccca tcaagcccca tcaagcccca acccaagccc tcaagcccca acccaagccc tcaagcccca acccaagccc tcaagcccca acccaagccc tcaagcccca acccaagccc tcaagccca tcaagcccca tcaagccca tcaagccaagc	aacccagtgg ccccgctgtc gccagcctcg agccgccggt	caagctcaag	gaactgcact	360
ccgagatcac gctgaatag gtgagataca agaatcgtca ggcatcatg gcggtcaaat 540 ccackgcgac gaagacgag cactggtca agacacacaca cacacacacacacacacacacacac	tetecaacat gaagacegtg gaetgtgtgg agegeaaggg	caagtacatg	tacttcactg	420
ccacgoggoa gaagcagcag cacctgytoc agcancagce ccctotogcag ccgaagcege agcoggocge catcaccagacct caagceccaa acccaagcect caagceccaa cccaagcect caagceccaa cccaagcect caagceccaa cccaagcect teangecctaa geometric formation of the composition of the co	tggtgatggc agagggcaag gagatcgact ttcggtgccc	gcaagaccag	ggctggaacg	480
agcogagat coagcoca accocagoot toagootcaa goongeaaco coaagoocca attoaanaco cocaagootco caagooccaa cocaagooc toangocagoot caagooccaa cocaagooc toangoccaa nocaagooc nocaagooc nocaagooc nocaagoocaa cocaagooc toangoccaa cocaagooc toangocagaga cocaagoocaa cocaagooc toangoccaa nocaagoocaa cocaagooc toangoccaa nocaagoocaa cocaagoocaa cocaagoocacacaccacaagoocaagoocaagoocaagoocaagoocaagoocaagoocaagoocaagoocaagoocacaccaccaagoocaagoocaagoocacaccaccaagoocaagoocaagoocaccaccaccaagoocaccaccaccaccaccaagoocaccaccaccaccaccaagoocaccaccaccaccaccaccaagoocaccaccaccaccaccaccaccaccaccaccaccacca	ccgagatcac gctgcagatg gtgcagtaca agaatcgtca	ggccatcctg	gcggtcaaat	
attcacaaac cecaagcete caagceccaa cecaagcee teangecea ngeaagntee 720 acceaanaac net 780 <pre></pre>	ccacgogga gaagcagcag cacctggtcc agcancagco	cccctcgcag	ccgcagccgc	
aacccganaac nct 780 <pre></pre>	ageegeaget ceaageecea acceeageet teageeteaa	gccngcaacc	ccaagcccca	
acccaanaac nct 793 <pre> <210> 179 <211> 786 <212> DNA <213> Homo Sapiens <pre> <400> 179 aatatcagag thitaattic aaccagctgg cacaacaatg aaagtgtcag actitictgaa agtactcgag aataatgaa taaattcita atgitticce ciccaacgce cittittatt 120 ctccaagatt aggaattact acgattagg tittitgaaaa taaaattcat tittidgaaa atgigtcad actitictgaa atgigtcad actitictgaa atgigtcaca ticagaaadtg ictiagaaca aggattaaa taaaactaat aaaataatcat 240 aaatcaaaat acattaaaat aaaattacag tacatcacg cicctagaaa attacacata 300 caagacgatc citticaaagg ticataaata aaagtcitic tigactigaaga atticacata 240 aaatcaaaat acattaaaat aaaattacag tacatcacg cicctagaaa atticacata 300 caagacgatc citticaaagg ticataaata aaagtcitic tigactigaag aggtticag aggagatag tigacgaga aggactigtii tigattiga caagtigaag 420 tigacaactaa tigactigti gegggegga aggactigtii tigattitiga caagtigaag 480 tigacccctti cangcagagt tigggagtig tigaggatig tigaggagaa caggigceg tigaggigag tigaggigtig tigaggatig tigaggagaa caggigceg tigaggigagggaggaggaggaggaggaggaggaggaggag</pre></pre>	atteadade decaageest caageestaa escaaagees	tcangcccca	ngcaagntcc	
<pre> <210> 179 <211> 786 <212> DNA <213> HOmo Sapiens <400> 179 aatatcagag ttttaatttc aaccagctgg cacaacaatg aaagtgtcag actttctgaa agtactcgag aaataatgaa taaattctta atgttttccc ctccacegcc cttttttatt 120 ctccaagatt aggaattact acggattagg tttttgaaaa taaagtttcc tttttggaaa atggtctaca ttcagaaatg tcttagaaca agcatttaaa aaaaacaat aaatacaat aaattaaaaa acattaaaaat aaaattacag tacatcatcg catggtgatg aaaagtatg cagaaaactaa gaagaatcgc aagtttcag tgtttccgg acagacggatc ctttcaaagg ttcataaata aaagtcttc tgcctgaaa attcaccata 300 catcgtgatg aaaagtatgc agaaaactaa gaagaatcgc aagttttag tagggtgatg cacagtagaaa tgtgctcgtc ccacttcctc aagtcctct tgcttgatg ccaagtgaag acaatagaaa tgtgctcgtc ccacttcctc aagtccacaa aaccttgttcggaag agactgtt tgcttttgtg ctgcgccttt cangcagagt tgggagggg agactgtt tgctgttgcg ggtagaggag cagatgggtg tggggtggg tgggggtgct tgcgganaaa ccggtgcccg tgcggctgcc ctggggtgcca antnaaggat gaaaatggg atntingan intigattccg gatacgggg gggaacctng cngggggcen naaggcttgg ggtggggaa cagaagggg ggggggaaccing cngggggccn naaggcttgg ggtggggga anaaggggggggggggggggggggg</pre>		ctcaangect	taactnegen	
<pre><211> 786</pre>	acceannac nec			793
<pre><211> 786</pre>	<210> 179			
<pre><213> Homo Sapiens <400> 179 aatatcagag ttttaatttc aaccagctgg cacaacaatg aaagtgtcag actttctgaa agtactcagag tttttaatttc aaccagctgg cacaacaatg aaagtgtcag actttctgaa agtactcagag ttttaattata atgttttcc ctccacagcc cttttttatt 120 ctccaagatt aggaattact acggattagg tttttgaaaa taaagtttcc tttttggaaa 180 atggctcaca ttcagaaatg tcttagaaca agcatttaaa aaaattacat 240 aaatcaaaat acattaaaat aaaattacag tacatcacg ctcctagaaa attacaccata caatgacgatc ctttcaaagg ttcataaaata aaagttttcc tgctctagaaa attacaccata caatgacgatc ctttcaaagg ttcataaata aaagttttct tgctctgaaa tcgtttcctg 360 catcgtgatg aaaagtagtc gcggagaaatcag agaaagtcg agttttcag tagggtgatg 420 ccaaactac ttgatctggt gcggggggg agaactgttt tgcttttgat ccaagtgaag 480 ccaaactac ttgatctggt gcggggggg agaactgttt tgcttttgat ccaagtgaag 660 aatgcggctt ggggtgtggg tgcggatgccg gcggatgcc gcgggggggggg</pre>				
<pre><400> 179 aatatcagag ttttaatttc aaccagctgg cacaacaatg aaagtgtcag actttctgaa 60 agtactcgag aaataatgaa taaattctta atgttttccc ctccacagcc cttttttatt 120 ctccaagatt aggaattact acggattagg tttttgaaa taaagtttcc tttttggaaa 180 atggtctaca ttcagaaatg tcttagaaca agcatttaaa aaaaacataa aaataacat 240 aaatcaaaat acattaaaat aaattacag tacatcatcg ctcctagaaa attcaccata 300 caagacgatc ctttcaaagg ttcataaata aaagtcttct tgactcgaaa tctgttcctg 360 catcgtgatg aaaagtatgc agaaaactaa gaagaatctct tgactcgaaa tgtttccgaagat ccaacatacat ttgatctggt gegggggga gagactgtt tgcttttgat tgacggtgatg 420 cacagtgatg aaaagtatgc agaaaactaa aaacttattag tgaggtgatg 420 cacagaccaat ttgatctggt gegggggga gagactgtt tgcttttgat tgcccggaag 640 ctgccccttt cang cagagt tggggggtg tgcggganaaa cagcttgccc tgccgggtgcc gtggggtgcc aattgaggtgggggggggg</pre>	<212> DNA			
aatatcagag ttttaatttc aacagctgg cacaacaatg aaagtgtag actttctgaa 60 agtactcgag aaataatgaa taaattctta atgttttccc ctccacagcc cttttttatt 120 ctccaagtat aggaattact acggattagg tttttgaaa taaagtttct tttttggaaa taaatgtgat ctttagaaat acgattacaa tacagtaggat ctttagaaca agcatttaaa aaaaactaat aaatacat 340 aaatacaaat acattaaaat aaatacag tacatcatcg ctcctagaaa atcagttccgacacaat cacagagagac ctttcaaaagg ttcataaata aaagtcttct tgactcgaaa tcgtttcctg 360 caccgtgatg aaaagtatgc agaaaactaa gaagaatcgc aagttttcag tagggtgatg 420 cacagtgatg aaaagtatgc agaaaactaa gaagaatcgc aagttttcag tagggtgatg 420 cacaatagaaa tggtgctgg gagaagatgtt tggttttgg tcgcaggag 540 cacaatagaaa tggtgctgcc cacttcctc aagtcctcaa accattgct tggccgggag agaactgtt tggttttgat cacagtgaag 540 cagaccatagaaa tggggtggggggggggggggggggg	<213> Homo Sapiens			
agtactoga aaataatgaa taaattetta atgittteee etecaacegee ettittitatt 120 ctecaagatt aggaattaet aeggattaeg tittitgaaaa taaagtitee tittitgaaaa 240 aaateaaaat etetaaaat aaatateag tettagaace ageattaaa aaaaataataatea 240 aaateaaaat acattaaaat aaattaeag tacateateg etetteegaaa atteaceata 240 caagacgate etticaaagg teetaaata aagatettee tyactegaaa atteaceata 240 caagacgate etticaaagg teetaaata aagatettee tyactegaaa atteaceata 240 categtyatg aaaagtatge agaaaatea gaagaatege aagtititeag tagggtgatg 420 categtyatg aaaagtatge egaaaactaa gaagaatege aagtititeag tagggtgatg 480 ccaaactaa tigatetget ecaatteete aagteetea aacettytee tyeceggaga 240 ctgeceette eangeagagt tygggaggag agaactgit tyetititgat ecaagtgaag 480 ctgeceette eangeagagt tygggaggeg tyggganaaa eagtegeeg tygggttgee gigggtygee aatteagagg 480 ctgeggtydeea anthaaggat gaaaatgtgg atnitingnat nitgatteeg gataagggg 480 gggaaceting enggggeen naaggettgg gyttggggee naanggetgg ggttittitaa 780 tygggg <210 > 180 <211 > 791 <212 > DNA <213 > Homo Sapiens <400 > 180 aggaccteag agacceagge tetgtgattg tyggeetteaa ggaaggggaa cagaagggaa 60 aggaagggtat ectgeaggtg egtegeacea acteageea geccagteea etgggaceat 120 aggaacteg gaaggggtat ectgaagggg etgegeacea acteageea gecagteea etgggaceat 180 aggaccteag etcetteeteeg acteatetete tygtgtgaggea eagaagteea etgggaceat 180 aggacgggtteen engggggee etgegeacea acteageeaa geccagteea etgggaceat 180 aggacggggtteen enggaggee etgegeacea acteageeaa geccagteea etgggaceat 180 aggacgggtae enggaggateen enggagggateea etgeggateea etgegagteea etgegagteea etgeggateea etgegagteea	<400> 179			
agtactoga aaataatgaa taaattetta atgittteee etecaacegee ettittitatt 120 ctecaagatt aggaattaet aeggattaeg tittitgaaaa taaagtitee tittitgaaaa 240 aaateaaaat etetaaaat aaatateag tettagaace ageattaaa aaaaataataatea 240 aaateaaaat acattaaaat aaattaeag tacateateg etetteegaaa atteaceata 240 caagacgate etticaaagg teetaaata aagatettee tyactegaaa atteaceata 240 caagacgate etticaaagg teetaaata aagatettee tyactegaaa atteaceata 240 categtyatg aaaagtatge agaaaatea gaagaatege aagtititeag tagggtgatg 420 categtyatg aaaagtatge egaaaactaa gaagaatege aagtititeag tagggtgatg 480 ccaaactaa tigatetget ecaatteete aagteetea aacettytee tyeceggaga 240 ctgeceette eangeagagt tygggaggag agaactgit tyetititgat ecaagtgaag 480 ctgeceette eangeagagt tygggaggeg tyggganaaa eagtegeeg tygggttgee gigggtygee aatteagagg 480 ctgeggtydeea anthaaggat gaaaatgtgg atnitingnat nitgatteeg gataagggg 480 gggaaceting enggggeen naaggettgg gyttggggee naanggetgg ggttittitaa 780 tygggg <210 > 180 <211 > 791 <212 > DNA <213 > Homo Sapiens <400 > 180 aggaccteag agacceagge tetgtgattg tyggeetteaa ggaaggggaa cagaagggaa 60 aggaagggtat ectgeaggtg egtegeacea acteageea geccagteea etgggaceat 120 aggaacteg gaaggggtat ectgaagggg etgegeacea acteageea gecagteea etgggaceat 180 aggaccteag etcetteeteeg acteatetete tygtgtgaggea eagaagteea etgggaceat 180 aggacgggtteen engggggee etgegeacea acteageeaa geccagteea etgggaceat 180 aggacggggtteen enggaggee etgegeacea acteageeaa geccagteea etgggaceat 180 aggacgggtae enggaggateen enggagggateea etgeggateea etgegagteea etgegagteea etgeggateea etgegagteea	aatatcagag ttttaatttc aaccagctqq cacaacaatc	aaagtgtcag	actttctcaa	60
ctccaagatt aggaattact acggattagg tttttgaaaa taaagtttcc tttttggaaa 184 atggtctaca ttcagaaaatg tcttagaaaca gcatttaaa aaaaactaat aaataatcat 240 aaatcaaaat acattaaaat aaaattacag tacatcateg ctcctagaaa attcaccata 300 caagacgatc ctttcaaagg ttcataaata aaagtcttct tgactegaaa tcgtttcctg 360 catcgtgatg aaaagtatgc agaaaactaa gaagaaatcg agattttcag tagggtgatg 420 tccaaactac ttgatctggt gegggggggg agaactgttt tgcttttgat ccaagtgaag 480 ctgacccttt cangcagatt tgggaggtg tgcgganaaa ccggtgccg tgcgcggag 540 ctgccccttt cangcagagt tggggaggtg tgcgganaaa ccggtgccg tgcggctgc 600 aatgcggctg tgggtgtgg tgcngtattt ggtgccggat gcnggtgcg ggtnaaggtg gggaacctng cnggggcon naaggcttgg ggttggggt naanggctgg ggttattaa 780 ttggggtycca antnaaggat gaaaattgtg ggttggggct naanggctgg ggtttttaa 780 ttgggg ccg ngggggcon naaggcttgg ggttggggct naanggctgg ggtttttaa 780 c210> 180 c211> 791 c212> DNA c212> DNA c213> Homo Sapiens c400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga 60 aggagggtat cctcagggtg cytcgcacca actcagccaa gcccagtcca ctgggcaccat 120 aggacctcag cactcaggcg ctcttctca atctcatc tgtgtgtgtgq qcaqqtacca ctggcaccat 180	agtactcgag aaataatgaa taaattctta atgttttccc	ctccaccqcc	cttttttatt	
atggtctaca ttcagaaatg tcttagaaca agcatttaaa aaaaactaat aataatcat aaataacat aaataaat	ctccaagatt aggaattact acggattagg tttttgaaaa	taaagtttcc	tttttggaaa	
aaatcaaaat acattaaaat aaaattacag tacatcatcg ctcctagaaa attcaccata acaagcagatc cuttcaaaagg ttcataaata aaagtcttct tgactcgaaa tcguttcctg caagacgatc cuttcaaaagg ttcataaata agaagaatcg aagttttcag tagggtyatg tccaaactac ttgatctgg eggggegga gagactgttt tgcttttgat ccaagtgaag 480 ctgcccttt cangcagagt teggggggga gagactgttt tgcttttgat ccaagtgaag 540 ctgccccttt cangcagagt tgggaggtg tgcgganaaa ccgggtgccg tgcgggtgcg 660 tggggtycca antnaaggat gaaaatgtgg atnttngna nttgattccg gatacgggg gggaacctng cngggggcen naaggcttgg gttggggga naanggctgg ggtttttaa 786 ttgggg <210> 180 <211> 791 <212> DNA <211> 791 <212> DNA <213> Homo Sapiens <400> 180 aggacctcag agacccagg tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgcagcg ctcgtgacca actcagcaa gcccagtcac actgagcacat 120 aggagggtat cctgcagcg ctcttctcg attactc gtgtgtggg accgaaggaga aggagggtat cctcaagtgg ctcttctcact gtgtgtgtgtg qcaqqtacca gccagtcaccat 120 aggacctcag ctcttctccg acttcatct gtgtgtgtgd qcaqqtacca gccagtaccat 180	atggtctaca ttcagaaatg tcttagaaca agcatttaaa	aaaaactaat	aaataatcat	
catcgtgatg aaaagtatgc agaaaactaa gaagaatcgc aagttttcag tagggtgatg 420 tccaaactac ttgatctgg gegggggag agaactgtt tgcttttgat caagtgaag 480 acaatagaaa tgtgctcgtc ccacttcctc aagtcctcaa acccttgtct tgcccggggg ctgccccttt cangcagagt tgggggtgtc tgcgganaaa ccgggtgcccg tgcggctgcc 600 aatgcgggtgcca antnaaggat gaaaatgtgg atnitingnat nitgattccg ggtacagggg gggaacctng cngggggccn naaggcttgg ggttgggggt naanggctgg ggttttttaa 780 786 <pre></pre>	aaatcaaaat acattaaaat aaaattacag tacatcatcg	ctcctagaaa	attcaccata	300
tcoaaactac ttgatctggt geggggegga gagactgttt tgcttttgat ccaagtgaag 480 acaatagaaa ttgtgctegtc ccacttcctc aagtctcaa aaccttgtct tgcccgggag 540 ctgccccttt cangcagagt tggggaggg tgcgganaaa ccggtgccg gtgcgctgcc 600 aatgcggctg tgggtgtgg tgcgganaat ccggtgccg gtnaaggtg 720 gggaacctng cngggggcn naaggcttg ggttggggct naanggctgg ggtttttaa 780 ttgggg	caagacgate ettteaaagg tteataaata aaagtettet	tgactcgaaa	tegttteetg	360
acdatagaaa tgtgctcgtc ccacttcctc aagtcctcaa aactttgtct tgccgggag 540 ctgccccttt cang casagt tgggaggtgc tgcgganaaa ccggtgccg tgcggctgcc 660 aatgcggctg tgggtgtgg tgcngtattt ggtgccggat gcnggtgccg ggtnaaggtg tgggtgcca antnaaggat gaaaatgtgg atnitingnat nitgaticcg ggtnaaggtg gggaacctng cngggggcen naaggcttg ggttggggct naanggctgg ggtttttaa 780 ttgggg <210 > 180 <211 > 791 <212 > DNA <213 > Homo Sapiens <400 > 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga 60 aggagggtat cctgcagcgg ctctgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcatggc ctcttctcog acttcatct gtgtgtgtgq qcaqqtacca gctgggaccat 180	categigatg aaaagtatge agaaaactaa gaagaatege	aagttttcag	tagggtgatg	420
ctgcccttt camgcagagt tgggaggtgc tgcgganaaa ccggtgcccg tgcggctgcc aatgaggtgct tggggtgtgct tggggtgtgtgtgtgtgtgtg	tecaaaetae ttgatetggt geggggegga gagaetgttt	tgcttttgat	ccaagtgaag	480
aatgoggott tgggtstggg tgcngtattt ggtgccggat gcnggtsgc ggtnaaggtg 660 tggggtgcca antnaaggat gaaaatgtgg atnitngnat nitgaticcg gatacggggt 720 780 786 ttgggg carbon naaggcttgg ggttggggct naanggctgg ggttitttaa 786 786 786 786 786 786 786 786 786 786	acaatagaaa tgtgctcgtc ccacttcctc aagtcctcaa	aaccttgtct	tgcccgggag	540
tggggtgca anthaaggat gaaaatgtgg athtingnat httgatteeg gataeggggt 720 gggaaccing enggggeen naaggettgg ggttgggeet naanggetgg ggtttttaa 780 786 <210> 180 <211> 791 <212> DNA <213> Homo Sapiens <400> 180 aggaccicag agaccagge tetgtgattg tggeettea ggaaggggaa cagaaggaga 60 aggagggtat eetgeaggtg egtegcacca acteagcaa gccagteeca etggeaccat 120 eccetaatgge etetteteeg acteatete gtgtgtgtgd qeaqqtacca etggeaccat 180	ctgccccttt cangcagagt tgggaggtgc tgcgganaaa	ccggtgcccg	tgcggctgcc	600
gggaacctng cngggggcn naaggettgg ggttggggct naanggetgg ggtttttaa 780 786 <210> 180 <211> 791 <212> DNA <213> Homo Sapiens <400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgaggtg cytcgcacca actcagcaa gcccagtcca ctggcaccat 120 ccctcatggc ctcttctcog acttcatct gtgtgtgtgtg cqaqtacca gctgagaccat 180	aatgeggetg tgggtgtggg tgengtattt ggtgeeggat	genggtgeeg	ggtnaaggtg	
ttgggg 786 <210> 180 <211> 791 <212> DNA <213> Homo Sapiens <400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgcagctg cgtcgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcatagge ctcttctccg acttcatct gtgtgtgtgtg qcaqqtacca ctggcaccat 180	rgggggggca anthaaggat gaaaatgtgg athtinghat	nttgattccg	gatacggggt	
<pre><210> 180 <211> 791 <212> DNA <212> DNA <213> Homo Sapiens <400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgcagctg cgtcgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcatggc ctcttctccg acttctatct gtgtgtgtgtgcqcqacqacqcac actcagcaca 120</pre>	gygaaccing engggggeen naaggetigg ggtigggget	naanggctgg	ggttttttaa	
<pre><211> 791 <212> DNA <212> DNA <213> Homo Sapiens <pre><400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgcagctg cgtcgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcataggc ctcttctccg acttctactc gtgtgtgtgtg cqcqqtacca gctgagqtaca gctagagtaca 180</pre></pre>	669999			786
<pre><211> 791 <212> DNA <212> DNA <213> Homo Sapiens <pre><400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga aggagggtat cctgcagctg cgtcgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcataggc ctcttctccg acttctactc gtgtgtgtgtg cqcqqtacca gctgagqtaca gctagagtaca 180</pre></pre>	<210> 180			
<pre><213> Homo Sapiens <400> 180 aggacctcag agacccaggc tctgtgattg tggccttcaa ggaaggggaa cagaaggaga 60 aggagggtat cctgcagctg cgtcgcacca actcagccaa gcccagtcca ctggcaccat 120 ccctcatggc ctcttctccg acttcatct gtgtgtgtgq qcaqqtdcac gctgagdaga 180</pre>				
<400> 180 aggacticag agacccagge tetgtgattg tggcetteaa ggaaggggaa cagaaggaga 60 aggaggggtat cetgagetg cytegcacca acteageeaa gcceagteea etggcaccat 120 cecteatgge cetetteecog actetatet gtgtgtgtgt qeagdacga gcceagteea 180	<212> DNA			
aggacotcag agacocaggo totgtgattg tggcottcaa ggaaggggaa cagaaggaga 60 aggagggtat octgcagotg ogtogcacoa actoagocaa gocoagtcoa otggcacoat 120 coctoatggo otottotcog acticatect gtgtgtgtg qoaqqtoca gotgogotga 180	<213> Homo Sapiens			
aggacotcag agacocaggo totgtgattg tggcottcaa ggaaggggaa cagaaggaga 60 aggagggtat octgcagotg ogtogcacoa actoagocaa gocoagtcoa otggcacoat 120 coctoatggo otottotcog acticatect gtgtgtgtg qoaqqtoca gotgogotga 180	<400> 180			
aggagggtat cetgeagetg egtegeacea acteageeaa geceagteea etggeaceat 120 eceteatgge etetteteeg acttetatet gtgtgtgtgg geaggtgeea getggggtgg 180		acananaca	Cacaaccaca	60
coetcatgge etetteteeg aettetatet gtgtgtgtgtg geaggtgca getggggtgg 180	aggagggtat cetqcagetq cqtcqcacca actracres	acceater	ctaacaccat	
gagttetgea gtgtgaeetg tgteaggaet ggtteeatgg qeagtgtgtg teagtgeee 240	ccctcatggc ctcttctccq acttctatct otororara	deadatacea	actaggatas	
	gagttctgca gtgtgacctg tgtcaggact ggttccatge	gcagtgtgtq	tcagtgcccc	240

```
atctcctcac ctctccaaag cccagtctca cttcatctcc actgctagcc tggtgggaat
                                                                     300
gggacacaaa attootgtgt coactgtgta tgcgctcacg acggccacgc ctagagacaa
tectageett getggttgee etgeagagge tgeeegtgeg getgeetgag ggtgaggeee
                                                                    420
ttcagtgtct cacagagagg gccattggct ggcaagaccg tgccagaaag gctctqqcct
                                                                    480
ctgaagatgt gactgctctg ttgcgacagc tggctgagct tcgccaacag ctacaggcca
                                                                    540
aacccanacc agaggaggec tcagtctaca cttcagccac tgcctgtgac cctatcagag
                                                                    600
aaggcagtgg caacaatatt tcmaangtcc aagggctgct ggagaatgga gacantgttg
                                                                    660
accagtectg agaacatgge tecaggaaag ggetetgace tggagetaen gteeteactg
                                                                    720
ttgccgcaat ttgactggnc ctgtttttgg ganctgcctg aaggcaatcc cggggctccc
                                                                    780
cctggaggga g
                                                                    791
     <210> 181
     <211> 747
     <212> DNA
     <213> Homo Sapiens
     <400> 181
agtatccaaa catactcatt gttttatttt taacaaaaga aatgaaatta aagatagacc
                                                                     60
acaggtagag tcatgaaatt cttgtttttc cctattcttt ttggtaatta caacgtacat
                                                                    120
180
agttttgaag caccaaaata ttttatgaca gggacaaaaa aacaaaaaac aaacaaaaat
                                                                    240
tgaagtacag aaagagggtg gtgggggcaa aaataaaggt acgcacttgg gcttcctcaa
                                                                    300
gatttgtttg tecetattea gaetagaatg aaactggttt aggaaateae teetgtatge
                                                                    360
tagcaggaat gttgctggca agacacttct gagcatcggg gtgtggactt tacgaaccaa
                                                                    420
ccttttaaca gtaactctag gagagaggat atcaaaaatt ggcagtgaaa aattatagat
                                                                    480
aggcaaaaag ctccttctga ggtccaggcc aggagatagt angatttaag aaacaaacaa
                                                                    540
acaataacaa ccacaaatgg acctttggtg ccactgtcac aactgttgct catcaqaqta
                                                                    600
ggagaattgt ancaaaggca ttaaagaagg gacaagcaag ctgaagagcc tgaatccttg
                                                                    660
gggttgtaag conattttgg gnttcctttc aagaaaaggg ctgttggncg gtggaanggg
                                                                    720
tcanggaaca ntatttcacq qqtcnqc
                                                                    747
     <210> 182
     <211> 909
     <212> DNA
     <213> Homo Sapiens
     <400> 182
aaacagagag ccaaatcatg agtgaactcc cattcacaat tgcttccaag ataataaaat
                                                                     60
acctaggaat ccaacttaca aaggatgtga aggacetett caaggagaac tacaaaccac
                                                                     120
tgctcaatga aataaaagag gatacaaaca aatggaagaa cattccatgc tcatgggtag
                                                                     180
gaagaatcaa tatogtgaaa atggocatac tgoocaaggt aatgtataga ttcaatgoca
                                                                    240
tececateaa getaccaatg actitettea cagaattgga aaaaactact caaaagttea
                                                                    300
tatggaacca aaaaagagcc cacattgcca agtcaatcct aagccaaaag aacaaagctg
                                                                    360
gaggcatcac gctacctgac ttcaaactat actacaaggc tacagtaacc aaaacagcgt
                                                                    420
ggtactggta ccaaaacaga gatataaatc aatgcaacag aacagagccc tcagaaataa
                                                                    480
tgccacatat ctacaactat ctgatctttg acaaacctga gaaaaacaag caatggggaa
                                                                    540
aggattccct atttaataaa tggtgctggg aaaactggct agccatatgt agaaagctga
                                                                    600
aactggatct cttctttata ccttatacaa aaattaattg aagatggntt aaaggactta
                                                                    660
aacgttagac ctaaaaccat aaaaacccta gaagaaaaac ctaggcatta ccattcangg
                                                                    720
acataggett gggcaaggac ttcctgtcta aaacaccaan agcaatggga ncaaaagcca
                                                                    780
aaattgcaaa tggggattct aattaactaa agggcttttg cacagenaag aagctccatc
                                                                    840
agagngaaca ggaacntcaa antgggagaa attttgaacc taccatcnga naaggctaat
                                                                    900
```

<210> 183

nccagaatc

<211> 708 <212> DNA <213> Homo Sapiens <400> 183 attatcatta tactttaagt tttaggttac atgtgcacaa tgtgcaggtt agttacatat 60 gtatacatgt gccatgctgg tgtgctgcac ccattaactc gttatttagc attaggtata 120 tetectaatg ctatecetee egecteecee caceecacaa cagteeceag agtgtgatgt 180 teccetteet gtgtccatgt gttctcactg ttcaattece acctatgagt gagaatatge 240 ggtgtttggt ttttttgtcc ttgccatagt ttactgagaa tgatgatttc caatttcatc 300 cctgtcccta caaaggacat gaactcatca ttttttatgg ctgcatagta ttccatggtg 360 tatatgtgcc acattttctt aatccagtct atcattgttg gccatttggg ttggttccaa 420 gtotttgcta ttgtgaatac tgccgcaata aacatacgtg tgcatgtgtc tttatagcag 480 catgatttat antcctttgg gtatatactc agtaatggga tggctgggtc aaatggnatt 540 ccaantccan atcccttang aattgccaca cggactccac aanggttgaa ctantttaca 600 gtcccancaa cagngtnaaa gggtccnaan tcnccaaaat cctctccaag caccngttgt 660 teceggaett tttaanggat tgncaattee aacegggngt caaaaggg 708 <210> 184 <211> 855 <212> DNA <213> Homo Sapiens <400> 184 agactcacag tetgetggtg ggcagagaag acagaaacga catgagcaca gcaggaaaag 60 taatcaaatg caaagcagct gtgctatggg aggtaaagaa accettttcc attgaggatg 120 tggaggttgc acctcctaag gcttatgaag ttcgcattaa gatggtggct gtaggaatct 180 gtcgcacaga tgaccacgtg gttagtggca acctggtgac cccccttcct gtgattttag 240 gccatgaggc agccggcatc gtggagagtg ttggagaagg ggtgactaca gtcaaaccag 300 gtgataaagt catcccgctc tttactcctc agtgtggaaa atgcagagtt tgtaaaaacc 360 cgqaqagcaa ctactgcttg aaaaatgatc taggcaatcc tcgggggacc ctgcaggatg 420 gcaccaggag gttcacctgc agggggaagc ccattcacca cttccttgqc accagcacct 480 teteccagta caeggtggtg gatgagaatg cagtggecaa aattgatgea geetegeeee 540 tggagaaagt ctgcctcatt ggctgtggat tctcgactgg gttatgggtc tgcagttaac 600 gttgccaagg tcaccccagg ctctacctgt gctgtgtgtg gcctgggaag ggtcggccta 660 tetgetgtta tgggetgtta aagcaactgg aggcanccag aatcaattge ggtggacate 720 aacaaggaca aattttgcaa agggcaaaag agttgggtgc cactgaatgc catcaaccct 780 caagnetnea ngnaaaccca teeaggnaag tgetaaaang gaatttaceg attggagggt 840 ttggattttt ccgtt 855 <210> 185 <211> 865 <212> DNA <213> Homo Sapiens <400> 185 cacagatgtt caatcaactg atgaagcaag tgtcaggact tactgttgac acagaggagc 60 ggctgaaagg agttattgac ctggtctttg agaaggctat tgatgaaccc agtttctctg 120 tggcttacgc aaacatgtgt cgatgtctag taacgctgaa agtacccatg gcagacaagc 180 ctggtaacac agtgaatttc cggaagctgc tactgaaccg ttgccagaag gagtttgaaa 240 300

900

946

tctagggatt atctcgaaag attgaaanaa agaataccaa ggccangaaa	eggtteatge ageagatnaa caagaatage ggtgtteeaa aanteegggt	ttcaaagatg gggcctnaan caaagggaag aaanttggcc	ttatanacet ctatcgaaca gnccaacaac	tnaaagaaag aaggctgttg gattcacaaa tcatggacca tggaaanacn	caattggggt ganggctaaa anggagaaat	600 660 720 780 840 865
		ens				
<400	> 186					
				taaagatttc		60
				aattcttgga		120
				attactattg		180
				atgccaaaaa		240
				taaatgctat		300
				tetgetttte		360
				tttgcagtcc		420
				ttttaagtat		480
				taatacatgt		540
				ngtacctttt		600
				acgtgggggt		660
		gattgggcga	anaacgttga	aaaacctttt	taaaaaaaaa	720
tacttaaaat	tgggtt					736
<211: <212:	> 187 > 946 > DNA > Homo Sapie	ens				
<400	> 187					
tgaaggagct	acaggccgag	caggaggacc	gggctttaag	gagttttaag	ctgagtgtca	60
				gggggcagta		120
				ggacgatggg		180
				agetgecagg		240
				cgtcccgctg		300
				caaaatcatg		360
				caactgcgtc		420
				caatctggag		480
				cgtccaccgg		540
agccaggage	ttcaggggac	aaggtggcac	ttqtqtttcc	agaggcaagc	naagtgcagg	600
ggtgagcaag	cnggcgggat	gctgggggtg	ctggggcaaa	ctgaccctgt	cttcctatct	660
				cctgcangtt		720
				ctttnttggt		780
				ttaaccaagc		840

tttcccancc tttgggggcc caaggtggct cccaaagaac cctccccntt nggggccccc

aaacnaatna ttgttcaaaa anggaacaaa aacccctctc aagccc

<210> 188

<211> 802

<212> DNA

<213> Homo Sapiens

600

608

tccttqaa

```
<400> 188
aaagtcaagg negtttattt cengaggnea tgacacanga agtggaatee naaccaeggn
                                                                       60
tgcggnnnaa aagtgatgaa ggccaaagtg ctgactgaca tgccgggtgg accaaganct
                                                                      120
ggagtengtt atentaacac gaatgeecan gaeettggtt taatgttaaa cantqqaqea
                                                                      180
ngteetgane gggeaeggee angeetggag ganeggeege acacacance angegenagg
                                                                      240
ctccctgcgg gacctcngga agggggaana qcqtcaacaa tttacqqnqq qtccaaccqc
                                                                      300
tgggtcaaat tgagacaaac cantgtgtgg ttgggttcgg gtcancangc tggananggt
                                                                      360
tengttentt ttgatcanta nentttgggg ecceaaggga nggtentggg anceaeetga
                                                                      420
nececaaage tgggaaatte etcaaagetg encatqteaa qaqeettene antqetqetq
                                                                      480
geggtccaag gtgcgtcccq caccacaaaq cctctqqaaq qnqccntqqc ctcttcctgt
                                                                      540
geogggggtt teatgintae etgeanegee teactgicea ceaangicag etaactgeag
                                                                      600
gennaagaca ggaatnacag ggteagtetg eccaacaace ceancatece qqeeeqeeet
                                                                      660
qqctcaaacc ctgcaacctt gcctgccttc cgggaancac aatttcccac ccttgtnccc
                                                                      720
ctgaaancen cetggnetgg ggeenteaaa ggeegttgga netteeanag gneneecea
                                                                      780
ggggntecca angggeecae aa
                                                                      802
      <210> 189
      <211> 807
      <212> DNA
      <213> Homo Sapiens
      <400> 189
aaaatggogg cggcagcggt gtcgctttqt ttccqcqqct cctqcqqcqq tqqcaqtggt
                                                                       60
ageggeettt gagetgtggg gaggtteeag cageagetae agtgaegaet aagaeteeag
                                                                      120
tgcatttcta tcgtaaccgg gcgcggggga gcgcagatcg gcgcccagca atcacaqaaq
                                                                      180
ccgacaaggc gttcaagcga aaacatgacc gctgagccca tgagtgaaag caagttgaat
                                                                      240
acattggtgc agaagcttca tgacttcctt gcacactcat cagaagaatc tgaagaaca
                                                                      300
agtteteete cacgaettge aatgaateaa aacacagata aaateagtgg ttetggaagt
                                                                      360
aactotgata tgatggaaaa cagcaaggaa gagggaacta gotottoaga aaaatocaag
                                                                      420
tottcaggat cgtcacgatc aaagaggaaa cottcaattg taacaaagta tgtagaatca
                                                                      480
gatgatgaaa aacctttgga tgatgaaact gtaaatgaag atgcgtctaa tgaaaattca
                                                                      540
gaaaatgata ttactatgca nagcttgcca aaaggtacag tgattgttca qccaqaqcca
                                                                      600
gtgctgaatg aagacaaaga tgattttaaa ggggcctgaa tttagaagca gaagttaaaa
                                                                      660
tgaaaactga naatctcaaa aaacgcogga gaanatqqqc ttcatqqqqa ttqtqanqcc
                                                                      720
tgcactggcn tggtggacaa caaggtcaat caatttcaaa aaggttccat ttatagacaa
                                                                      780
cccttcaatg caaggtcnta tttgtta
                                                                      807
      <210> 190
      <211> 608
      <212> DNA
      <213> Homo Sapiens
      <400> 190
ccagttettt tttteeette ttetggetea teatetgaag atccateete atcagaggaa
                                                                       60
agattggctt taatttcttc taaaagcatc ttcttggcaa ttctattctc aggatcattg
                                                                      120
togtcatcat catcatccac tgtgacaggc actgatttag ataaggcttc atctcctgaa
                                                                      180
gattggcaaa atccagtatg tgaagacagc actaaatttt cagtcacagg cttaattttc
                                                                      240
tgttcatcgc tgcttccctc acctatagaa ttctgatcat catcttctat atcagaagaa
                                                                      300
gatgaggatg taatgtcagc ttgcttcctt ttagtgcttg ttcttaggga gtttctcttt
                                                                      360
ttotoottga caatgactgo ottottttta gatgaagtto tttgottott otttttacta
                                                                      420
tottcangaa ctttcctcag catcagatga tgatgangcc actttgtatt tccttagtat
                                                                      480
ttetetttga acttaaattt ettettteee teaattegag tetttteagt cacettatea
                                                                      540
```

gaagagttac aancatcttc tttcatggga agtatcaaga tgatgaacaa tcttqtcnct

<210> 191 <211> 786 <212> DNA <213> Homo Sapiens

<400> 191

gcactttgct gatggtggac agtgaggagg aqtacttccc tqaaqaqatc qccaaqctcc 60 ggagggacgt ggacaacggc ctctcgctcg tcatcttcag tgactggtac aacacttctg 120 ttatgagaaa agtgaagttt tatgatgaaa acacaaggca gtggtggatg ccggataccq 180 gaggagetaa cateecaget etgaatgage tgetgtetgt gtggaacatg gggtteageg 240 atggcctgta tgaaggggag ttcaccctqq ccaaccatqa catgtattat qcqtcaqqqt 300 gcagcatcgc gaagtttcca gaagatggcg tcgtgataac acagactttc aaggaccaag 360 gattggaggt tttaaagcag gaaacagcag ttgttgaaaa cgtccccatt ttgggacttt 420 atcagattcc agctgagggt ggaggccgga ttgtactgta tggggactcc aattgcttgq 480 atgacagtca ccgacagaag gactgctttt ggcttctgga tgccctcctc cagtacacat 540 eqtatqqqqt gacaccqcct aqcctcaqtc actctqqqaa ccqccaqcqc cctcccantt 600 qqaqcaaqct caqtcactcc aqaqaqqatq qaaqqaaacc atctcatcqq tactccaaqq 660 ttctggangg ccatttggga aaaccaaaac ctcgggctcn acaaccctgt ccangcctgt 720 netgggecaa gecaanagee tttaaacean aacggngece aattaaceet ttqqaaaaca 780 tcagaa 786

<210> 192 <211> 819 <212> DNA

<213> Homo Sapiens

<400> 192

gacgggtaat acatatttat tgaaaatttt cttcaccgac aatggtgaaa tcaagacctc 60 aaattacaaa acatggtggc aggtgatact tacaaaaata aagcgaaggt ctatgtttta cagatttgtg catgtttcct tcaaatctca gtctgtactg tcattaaaaa gatcatggaa 180 tctatgttgt tcctcatgat ggaatagtaa aaaaactgca ttccactgac aaaaaaaata 240 getttgette caaatageae aagtetttaa agtgaetttt eecaacaata aatatagaaa 300 atagcettta acaagegtet tttagettgg teagggttgt ateatttgtt tggaaagtae 360 atcettecce tgcagtcaga agaccecaga cagcetttee agtteteceg agtetttggt 420 gegeacaget geographia agteteacty geggeagage cactaagtee etectgacgg 480 gatecacagg aatetteteg atgtaccagg ageetetgee cateacagga gggeaggeee 540 atgtagaaca agactctaac aaacctgcag ctggaaactg gattcctttt aaaccaaccc 600 gccaacacag ctcggntcac ccaccancgc cgtccgtnaa aqqqqctctc tqqqcctcac 660 gggtcagcca ggttgccggt cacaccgaaa ggggtccttg ggcgggtgaa cctgctgcat 720 gaanctggeg gggngcttca accetggget teeteegget tteggeetgg neetgggeet 780 tgttgaantt qntccacaaa aqaaaqqcca qqaqcaaca 819

<210> 193 <211> 744 <212> DNA

<213> Homo Sapiens

<400> 193

cagtoccago acaacotgoa ggggcatotg tocagootgt tgggccagget coggcagoag 60 tgtctgctgt acctactggc agtcagattg caaatattgg tcagcaagca aacataccta 120 ctgcagtgca gcagccctct acccaggttc caccttcagt tattcagcag ggtgctcctc 180 catcttcqca agtggttcca cctgctcaaa ctgggattat tcatcaggga gttcaaacta 240 gtgctccaag ccttcctcaa caattggtta ttgcatccca aagttccttg ttaactgtgc 300 ctccccagcc acaaggagta gaatcagtag ctcaaggaat tgtttcacag cagttgcctg 360 cagttagttc tttgccctct gctagtagta tttctgttac aagtcaggtt agttcaactq 420

PCT/US98/14679

300

gteettetgg aatgeettet	gccccaacaa	acttqqttcc	accacaaaat	atagcacaaa	480
cccctgctac ccaaaatggt					540
actaatacaa atttgccttt					600
acaatcatta geteaggeaa	ttggaagcca	aattgaagat	gccaggcgtt	gcagcggagc	660
cctccttaag ttggcttacc	tcaagactaa	tcagttggtg	acaattgggg	ggaatgttca	720
gcaagtttca agattgggaa	gtta				744
<210> 194					
<211> 567					
<212> DNA					
<213> Homo Sapie	ens				
<400> 194					
atcaacattt atatgcttta	ttgaaagttg	acaagtgcaa	cagttaaata	cagtgacacc	60
ttacaattgt gtagagaaca					120
tgcagaaacc cctactggga					180
ttcaaccagc tcaattgaaa					240
ctagatttca ggattacaca					300
gtggtttttg tcatgtagca					360
agacangcca atgaaacnac					420
tctangtgnn caangatact					480
catggggaag gatagcccta gttttggtgt ccaatccatt		Lancetgtea	ccatttttgt	cactctcata	540
georgege coarcoare	ggccccg				567
<210> 195					
<211> 771					
<212> DNA					
<213> Homo Sapie	ens				
<213> Homo Sapie	ens				
<400> 195 gagagaacag agcaacaaga	gcacaaagaa				60
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc	gcacaaagaa tgtgatccaa	ggataaaaaa	gttcaaggaa	gaagaaaaag	60 120
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag	gcacaaagaa tgtgatccaa aaagcaaaag	ggataaaaaa cagaagctaa	gttcaaggaa acggaaggag	gaagaaaaag caagaagcta	120 180
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagct	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag	ggataaaaaa cagaagctaa ctgctcggtt	gttcaaggaa acggaaggag agctaaggag	gaagaaaaag caagaagcta aaagaagagg	120 180 240
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagct aggaagtcag acagcaagca</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa	gttcaaggaa acggaaggag agctaaggag agatatccag	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca	120 180 240 300
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaca aagacaagct aggaagtcag acagcaagca ttaagaagga aaggcaaaaa ttaagaagga aaggcaaaaa	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata	120 180 240 300 360
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagct aggaagtcag acagcaagca ttaagaagga agggggaaaaa atgaggcaga gegggttaaa</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag	ggataaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac aagtggaaaa	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac	120 180 240 300 360 420
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aggaagtcag acagcaagca ttaagaagga aggaaagca ttaagaagga aaggcaagaa ttaagaagga aaggcaaaaa aaggagtcaga geggttaaa tggcaagctt acagtgettg	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac	ggataaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac aagtggaaaa tcacatcatg	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaaagaa	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg	120 180 240 300 360 420 480
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagct aggaagtcag acagcaagca ttaagaaggag aaggcaaaaa ataggcaagct atggcaagct acgggttaaa tggcaagct acagggttaaa tggcaagct acaggatgctt acagaggag ctggttaaa tggcaagct acagaggt acagaggag acagaggag acagagagag acagagag acagagag acagagagag acagagag acagag acagag acagag acagag acagag acagag acagag acagag acagag<	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaaagaa cagaaaagag	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag	120 180 240 300 360 420 480 540
<400> 195 gagagaacag agcaacaaga tagtttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagct aggaagtcag aagcaagaa ttaagaagga agggggttaaa tgcaagctt acagtgcttg ctgctttgga aaaacaagata ctgaggctg tatgaggacag ttgaggcttg tatgaggctag tatgaggcttg tatgaggctag tatgaggctag tatgaggcttg tatgaggctag tatgaggctag tatgagcaacaagata tatgaggctag tatgaggctag tatgaggacaa	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacaa gaagaaataa gcatctaaga	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagaa aagtggaaaa tcacatcatg atgagcaaat acacagagaa	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtat cacaaaagaa cagaaaagag atcaactggt	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata eggettgaac gtnggaaagg aaagaggaag ggaaggtgga	120 180 240 300 360 420 480 540 600
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaagtcag acagcaagct aggaagtcag acagcaagca taaggaagtcag aaggcaaaaa atggaaggcag geggttaaa tggcaagctt acagtgcttg ctgcttttgga aaacagata ctgaggctq taagacagta ctgaggctg taggcaga tacgtgttgttg ctgtttgga aaacagata ctgaggctcg tatggacaa aaatggaagt aaaattgga aaattggaagt aaaattgga	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa gaagaaataa	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac acactcatg atgagaaaa tcacagagaa ntctacaatt	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaaagaa agaaaagag acaaaagggg actaatttna	gaagaaaaag caagaagagta aaaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa	120 180 240 300 360 420 480 540 600
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaca aagacaagct atgaagtcag acagcaagca ttaagaagga aaggcaagaa atgagaagca acagtgataaa ttgagttaga ctgctttgga aaaacagata ctgcttgga ctagttgag ctgctttgga aaaatggagt aaaatggaagt aaaatggagt coctgttnce tgctgaaca	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa gcatctaaga cacaaagaat aantcaagat	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaagtcag acagcaagct aggaagtcag acagcaagca taaggaagtcag aaggcaaaaa atggaaggcag geggttaaa tggcaagctt acagtgcttg ctgcttttgga aaacagata ctgaggctq taagacagta ctgaggctg taggcaga tacgtgttgttg ctgtttgga aaacagata ctgaggctcg tatggacaa aaatggaagt aaaattgga aaattggaagt aaaattgga	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa gcatctaaga cacaaagaat aantcaagat	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 600
<400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaca aagacaagct atgaagtcag acagcaagca ttaagaagga aaggcaagaa atgagaagca acagtgataaa ttgagttaga ctgctttgga aaaacagata ctgcttgga ctagttgag ctgctttgga aaaatggagt aaaatggaagt aaaatggagt coctgttnce tgctgaaca	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa gcatctaaga cacaaagaat aantcaagat	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag agaaaaaca aagacaagct aggaagtcag acagcaagca ttaagaagga aggcaaaaa atgaggaagt acagtgttag tgcttttgga aaaacagata ctgaggctcg tatggacaa attgagactag aaaaattggg tcctgtttga aaaatggaac ctgaggctcg tatggacaa attcagagctcg tatggacaa attcatcccen cngggngtcc <210> 196 <211> 561</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aatgaaacac gaagaaataa gcatctaaga cacaaagaat aantcaagat	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaca aagacaagca tagtaggaga aggcaaaaa atgaggcag agggttaaa tggcaagct acagtgcttg ctgctttgga aaaacagata ctgaggctg tatggacaaaa aattgggctg tatggaca aaattggaagt aaaaattggg tcctgttnec tgctggaaca attectceen engggngtec <210> 196 <211> 561 <212> DNA</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatgaacaca gaggaaacaa gcatctaaga cacaaagatg aantcaagat aanaagata	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag agaaaaaca aagacaagct aggaagtcag acagcaagca ttaagaagga aggcaaaaa atgaggaagt acagtgttag tgcttttgga aaaacagata ctgaggctcg tatggacaa attgagactag aaaaattggg tcctgtttga aaaatggaac ctgaggctcg tatggacaa attcagagctcg tatggacaa attcatcccen cngggngtcc <210> 196 <211> 561</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatgaacaca gaggaaacaa gcatctaaga cacaaagatg aantcaagat aanaagata	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaca aagacaagca tagtaggaga aggcaaaaa atgaggcag agggttaaa tggcaagct acagtgcttg ctgctttgga aaaacagata ctgaggctg tatggacaaaa aattgggctg tatggaca aaattggaagt aaaaattggg tcctgttnec tgctggaaca attectceen engggngtec <210> 196 <211> 561 <212> DNA</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatgaacaca gaggaaacaa gcatctaaga cacaaagatg aantcaagat aanaagata	ggataaaaaa cagaagctaa ctgcteggti agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagaa atcaactggt actaatttna	gaagaaaaag caagaagcta aaagaagagg aaaaaagcca ttttctgata cggcttgaac gtnggaaagg aaagaggaag ggaaggtgga aagctgtgaa atgaacatac	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag agaaaaaca aagacaagca ttaagaagga aaggcaagca ttaagaagga aaggcaaaaa atgaggcaga gegggttaaa ttggcaagctt acagtgcttg ctgcttttgga aaaacagatta ctgaggctg tatgcgacaa aatggaagt aaaaatggg tcctgttnce tgctggacaa attcctccen cngggngtcc <210> 196 <211> 561 <212> DNA <213> Homo Sapio <400> 196</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag ttgctggcaa tttcgaaact atgatggaag aattgaaacac gaagaataa gcatctaaga cacaaagaatg aantcaagat aaaaagaaac	ggataaaaa cagaagctaa ctgctoggtt agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacagagaa ntctacaatt gggaagttat tgccaaaagn	gttcaaggaa acggaaggag agctaaggag ctggaatcat actttgtgat cacaaaggaa atcaaatgat actaattta tgccaantac atgtttattg	gaagaaaaag caagaagcta aaagaaggg aaaaaagcca ttttctgata gtugaaagg aaagaggaag ggaaggtgga aagctgtgaa agatgtgaa g	120 180 240 300 360 420 480 540 660 720
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag aagaaaaaca aagacaagca ttaagaagga aggcaaaaa atgagcagg cgggttaaa atggcaagctt acagtgcttg ctgctttgga aaaacagata ctgaggctg tatgcagcaa aattgggcag tatgcagcaa aattgggcag tatgcagcaa ctgaggctg tatgcagcaa aattgggcag tatgcagcaa aattggcag cagggtgcaaca ctgaggctg tatgcagcaa aattgctcccn cngggngtcc <210> 196 <211> 561 <212> DNA <213> Homo Sapin</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag tttcgaaact atgatggaag aattgaaaca gaagaaataa gcatctaaga acacaaagatg aantcaagat aaaaagaaacac	ggataaaaaa cagaagctaa ctgctcggtt agaaggaaaa catgcaagac aagtggaaaa tcacatcatg atgagcaaat acacaagagaa ntctacaatt gggaagttat tgccaaaaagn	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaagaa cagaaaagga atcaactggt actaatttna tgccaantac atgtttattg	gaagaaaag caagaagcta aaagaaggag aaaaaagcca ttttctggata cggcttgaaag gtaggaaagg gaaagatgga aagattgaa aagcttgaa atgaacatac g	120 180 240 300 360 420 480 540 600 660 720 771
<pre><400> 195 gagagaacag agcaacaaga tagttgacaa tgcatacagc ccaagaaaga ancanaaaag agaaaaaca aggacaagct aggaagtcag acagcaagca ttaagaagga aggcaaaaa atgaggcag tagggataaa atggagagta caggttaaa ttggcaagctt acagtgcttg ctgcttttgga aaaacagata ctgaggctcg tatggacaa aatggaagt aaaaattggg tcctgttncc tgctggaaca attcctcccn engggngtcc <210> 196 <211> 561 <212> DNA <213> Homo Sapid <400> 196 acagtatttt cagtttttt</pre>	gcacaaagaa tgtgatccaa aaagcaaaag gaattagaag tttctgacaa ttttgaaact atgatggaag aatgaaacac gaagaaataa gcatctaaga cacaaagaat aantcaagat aanaaagaaac	ggataaaaaa cagaagctaa ctgctoggtt agaaggaaaa cacaatcatg atgagaaaa atcacaatcatg atgagaaaa atcacaatatg ggaagttat tgccaaaaagn acacaaaca gctttctttg	gttcaaggaa acggaaggag agctaaggag agatatccag ctggaatcat actttgtgat cacaaaggaa acaaaaggaa acaaactggt accaaatttna tgccaantac atgtttattg	gaagaaaaag caagaagcta aaagaaggag aaaaaagcca ttttctggata cggcttgaac gtnggaaagg gaaagtggaa ggaagttgga aagacgttgga atgaacatac g	120 180 240 300 360 420 480 540 660 720 771

tottetgttg tocaaggggt gaagtotgta tatggacett caaategtte tgaaggegtt

gcgttgtctg cttgaggtac cactccatgt tcttttttga actta tttangtcag ctttttgatg agggtcaagt ttttggagac tcttt tctttggnan gttcttttga ctccaagagg aagaangtnt ngttc aacgtcccat ctggaanttt tgttcnacca gggaacanac tcaca antgtngnat naccgncngn c	gettt gecaataaca 420 atgtn antangeaan 480
<210> 197 <211> 691 <212> DNA <213> Homo Sapiens	
<400> 197	
cgccacaacc acaaccagca ccacagcete caccacecca geage	agecq caacaqcaqc 60
cgcagcetca geoccagcag cetecaecee caceceetee ccage	
cacagtgtan tatgaataac agtttcaccc cagctcctat gatca	
ctggaagcac tgggaacata agtatctatg agaggattcc agggg	atttt ggtgccggca 240
gctactctca accatcagec accttcagec tagccaaget geage	
ttatggaccc tcatgccatg cettatagcc attetectgc tgtga	
gtgtttetet gtecaataca ggaetggete agetggetee atete	
ctcctcaagc acangccacc atgacgccac ccccaaactt ggcat	
tcacatctcc tctgcttcag tgcaacatgt ctgccaccaa cattg	
aggagattgc aagggcaaat gccagtgaag gggcacattt ccatc ggcactgccc tetgcngctg ctcaccanna ngcagctggt atggg	
ggcagtttgc caatgcaang gcttgggccc t	ccgtn tccccaatcg 660 691
Spendonedo amagamma accedadacco c	691
<210> 198 <211> 646 <212> DNA	
<213> Homo Sapiens	
400 400	
<400> 198	taasa 60
acctatccct ggagcaagta ataggaagag aatgggcaaa ctggt agaatggagt tgggagcaac acatgaactt gcgttataac attct	tgcac gagagaaaag 60 gctqt ccagatctqc 120
cctactgtgc tggtggtegg tetgteeete tteteattag ccaet	cacag gagaggtqct 180
tgtgcactct gattcacagg ggatgaactc aggatctcaa aagac	
gtatgtatca cttaagtagc tacgaaactc acaccgtgat ctccc	
gegecatete ttecaacata aaatanaetg tttcaatggt ttgte	
cactaanatg tacagtcatc caccaacaat ttaagaaaga accta	agagg caaatcactg 420
gggactgcta tttgagtttt atcagtcaaa ggctcaagca tcaar	accet cagttaneat 480
ttcaaagtac atactangaa acancgaggc tgggtggcgt tgtgt	
caccaggtgg taaancaaca aagnggttaa gnctccnctt tttgg	
tootonatto otocaaaagg gotgggattt ggatttggca aagto	a 646
<210> 199	
<211> 811 <212> DNA	
<212> DNA <213> Homo Sapiens	
tomo oupromo	
<400> 199	
cggcggcgct ccaggtgctg acagcgcgag agagcgcggc cctca	ggage aaggegaatg 60
tatgacaaca tgtccacaat ggtgtacata aaggaagaca agttg	
gatgaaatta tttctaagac aaagcaagta attcaggggc tggaa	gagaa gcttacacag 120
	gcttt gaagaatgag 180
cacaattcca ttttacaaag tttgctggag acactgaagt gtttc agtaatttgg tggaggagaa atcaaacatg atccggaagt cact	gcttt gaagaatgag 180 gaagaa agatgatgaa 240

360

ggcctgagtg aggcacaggt tatgatggct ttgtcaaatc acctgaatgc tgtggagtcc

```
gagaagcaga aactgcgtgc gcaggttcgt cgtctgtgcc aggagaatca qtqqctacqq
                                                                      420
gatgaactgg ccaacacgca gcagaaactg cagaagagtg agcagtctqt gqctcaactg
                                                                      480
gaggaggaga agaagcatct ggagtttatq aatcagctaa aaaaatatqa tqacqacatt
                                                                      540
tececateeg aggacaaaqa caetqattet accaaaqaqe etetqqatqa eetttteeee
                                                                      600
aatgatgaag acgacccagg gcaaggaatc cagcagcagc acagcagtgc agccgcqqct
                                                                      660
gcccagcaag gengetaena agatteeege geggetgegg aegeteeaea acetqqqtqa
                                                                      720
ttcagttcgc ctcnncangg ggccgctacc aaggtaacct qttqccccct cctqqcaaag
                                                                      780
caaggneeet qggaaqqqan eetqqqaqqa a
                                                                      811
      <210> 200
      <211> 763
      <212> DNA
      <213> Homo Sapiens
      <400> 200
acacagtaaa tggattttat taatacagtt tatattacta agtacatatc tggcaaagct
                                                                       60
acatgtatac agaaatcagg aaccccccca aaaaggacag cagcaccgaa aggaatqqcc
                                                                      120
agttcacaga gaggtgcagc tctgacaaga tcctagaggc tgctagacac aqcqqqcaqc
                                                                      180
actqqaqaqa gaaqqgaagc tgcgggaggc qccacccqtc atqcaqqaqa caqtqtqaqa
                                                                      240
gtcacgggcg gctaggccat gggacgctga gcaagtcagt taaccagccc gagcttcatt
                                                                      300
tteeteattt ecteeette qteaqqqea eteteqtaet tqaeeacqte cacqttqaqq
                                                                      360
ctctcacggc tcctqcqctt ctccatqttc tcaqqqtcat tqaqcacttc tqccaccctc
                                                                      420
tgtttgtgaa cattgtcaag accetgttta cgagacetca tagcagette ttetaacgtt
                                                                      480
totgoagott caaatttgcc ttgacgtctg taaagtgccc caaggttttt tagagtggtt
                                                                      540
gtaacagttg gnctatcaac tttgcanget ttgtaccaac cqccatactc tccaaaaaga
                                                                      600
tgtcccatcc ttttgctttc ctttgcattc ttctctttcc tcaacaatgc atccaaatgg
                                                                      660
qtttaatttc aacatctaca qaaccaaact coctttcatg tgcacaagtg agaatcnott
                                                                      720
tgtacantgt ttccgccttc cttgaacntt ccctgtttca aaa
                                                                      763
      <210> 201
      <211> 717
      <212> DNA
      <213> Homo Sapiens
      <400> 201
ggcgaatgta tgacaacatg tccacaatgg tgtacataaa ggaagacaag ttggagaagc
                                                                       60
ttacacagga tgaaattatt tctaagacaa agcaagtaat tcaqqqqctq qaaqctttqa
                                                                      120
agaatganca caattccatt ttacaaagtt tgctggagac actgaagtgt ttgaagaaag
                                                                      180
atgatgaaag taatttggtg gaggagaaat caaacatgat ccqqaaqtca ctqqagatgt
                                                                      240
tggagetegg cetgagtgag geacaggtta tgatggettt gteaaateae etgaatgetg
                                                                      300
tggagtccga gaagcagaaa ctgcgtgcgc aggttcgtcg tctgtgccag gagaatcagt
                                                                      360
ggctacggga tgaactggcc aacacgcagc aagaaactgc agaagagtga qcaqtctqtq
                                                                      420
gctcaactgg aggaggagaa gaagcatctg gagtttatga atcaqctaaa aaaatatqat
                                                                      480
gacgacattt ccccatccga qggacaaaga cactgattct accaaagagc ctccqqatga
                                                                      540
cettttcccc aatgatgaag acgaccccag ggcaagggaa tccancagca gcacagcaan
                                                                      600
ttgcagccgc ggctqcccaa qcaaqqcqqc tacqaqattc ccqccqcgc tqccqqacqc
                                                                       660
tecacaacet qqtnatecaa tacqcccten caaqqqqcqc taccaaqqqt aactqtt
                                                                      717
      <210> 202
      <211> 647
      <212> DNA
      <213> Homo Sapiens
      <400> 202
cagteggagt gagtttatta gaagttagaa agacacaaat acacaaatca etqaqeactt
```

PCT/US98/14679 WO 99/04265

```
caagattagt agagaaaagc agaatgccca aatttcacac acagactaca cagcaaatgc
                                                                      120
tactggggca tatcctaggg agacccggag tccgagcggg gcccccaggg ctctaaqtac
                                                                      180
cacggagcac gtgcggcaca tgccttgctg taaggcttag ttacgtcaac aqqtcaccqt
                                                                      240
catgocattg caacaacaco ttgtgtgaca ottaactaco tgttaccaaa gtgaacagot
                                                                      300
aatcqctctt aatttttaaa ctcqtqtatt acacaqtaaa tqqattttan taatacaqtt
                                                                      360
tatattacta agtacatatc tggcaaagct acatgtatac agaaatcagg aaccccccca
                                                                      420
aaaaggacag cagcaccgaa aggaatggcc agttcacaga nangtgcagc tctqacaaqa
                                                                      480
tectagange tgetagacae agegggcage aetggganaa gagaagggaa getgegggag
                                                                      540
gegecaacce gteatgecag gggacagtgt ganagteaeg ggnegggeta ngccaatggg
                                                                      600
aacneetgan geaangeagt ttaaceange ecognogett caatttt
                                                                      647
      <210> 203
      <211> 786
      <212> DNA
      <213> Homo Sapiens
      <400> 203
cagccatgga cgccatcaag aagaagatgc agatgctgaa gctggacaag gagaacgcca
                                                                       60
tegacegege egageaggee gaageegaca agaageaage tgaggaeege tqcaaqeaqe
                                                                      120
tggaggagga gcagcaggcc ctccagaaga agctgaaggg gacagaggat gaggtggaaa
                                                                      180
agtattetga ateegtgaag gaggeecagg agaaactgga qeaqqeeqaq aaqaaqqeea
                                                                      240
ctgatgctga ggcagatgtg gcctccctga accgccgcat tcagctggtt gaggaggagc
                                                                      300
tggaccgggc ccaggagcgc ctggctacag ccctgcagaa gctggaggag gccgagaagg
                                                                      360
cggctgatga gagcgagaga ggaatgaagg tcatcgaaaa ccgggccatg aaggatgagg
                                                                      420
agaagatgga actgcaggag atgcagctga aggaggccaa gcacatcgct gaggattcag
                                                                      480
accgcaaata tgaagaggtg gccaggaagc tggtgatcct ggaaggagag ctggagcgct
                                                                      540
cggaggagan ggctgaggtg gccgagagcc gagccagaca gctggaggag gaacttcgaa
                                                                      600
ccatggacca ngccctcaag tccctgatgg cctcanagga ggagtattcc accaaagaag
                                                                      660
attaatatga agaggagatn aaactgttgg anggagaagc tgaanggagg ctganacccc
                                                                      720
aagcaaaagt ttgccnaaaa ggtctgtggg caaaaatttg ggngaaaaac catcnaatga
                                                                      780
acctta
                                                                      786
      <210> 204
      <211> 738
      <212> DNA
      <213> Homo Sapiens
      <400> 204
ggctagtaac atcagtttta ttgggttggg gtggcaacca tagcctggct ggggtggg
                                                                       60
ctggccctca caggttgttg agttccagca gggtctggtc caaggtctgg tgaatctcga
                                                                       120
egitetecte citggeactg gecaaggiet citetaggie ategatggit tietecaact
                                                                       180
ttgccacaga cctctcggca aactctgctc gggtctcagc ctccttcagc ttctcctcca
                                                                       240
acagtttgat etectettea tatttatett etttggtgga atacteetee tetgaggeea
                                                                       300
teagggactt gagggeetgg tecatggtte gaagtteete etecagetgt etggetegge
                                                                       360
teteggeeac eteageeete teeteegage geteeagete teetteeagg ateaceaget
                                                                      420
tectggeeac ctetteatat ttgeggtetg aateeteage gatgtgettg geeteettea
                                                                       480
gctgcatctc ctgcagttcc atcttctcct catccttcat ggcccggttt tcnatgacct
                                                                       540
teatteetet etegetetea teageeegee tteteggete eteeagette tgeanggetg
                                                                       600
tanccaange geteetggge eeggteaane teeteeteaa caagetgaat geggeggte
                                                                       660
aaggaaggca anatotgcot caacaacaat tggcottott encggeenge tecaatttte
                                                                       720
nccnggggcc tccttcaa
                                                                       738
```

<210> 205 <211> 818

<212> DNA

<213> Homo Sapiens

<400> 205

gctagtaaca tcagttttat tgggttgggg tggcaaccat agcctggctg ggggtggggc 60 tggccctcac aggttgttga gttccagcag ggtctggtcc aaggtctggt gaatctcgac 120 gttctcctcc ttggcactgg ccaaggtctc ttctaggtca tcgatggttt tctccaactt 180 tgccacagac ctctcggcaa actctgctcg ggtctcagcc tccttcagct tctcctccaa 240 cagtttgatc tectetteat atttatette tttggtggaa tacteeteet etgaggeeat 300 cappqacttg agggeetqqt ccatqqttcq aaqtteetee tecaqetqte tqqeteqqet 360 ctcqqccacc tcaqccctct cctccqaqcq ctccaqctct ccttccaqqa tcaccanctt 420 cotggccacc tottcatatt tgcggtctga atcctcagcg atgtgcttgg cotcettcag 480 ctgcatctcc tgcagttcca tcttctcctc atccttcaag gcccggtttt cgatgancct 540 tcattcctct ctcqqctctc atcaqccqcc ttctcqqqct cntccaaqct tctqcaaqqc 600 tgtanncann ggctcctggg gcccgggtnc aagntcctcc tcaaacangc tnaaatncca 660 gagggtttca nggaagggcc aaaatctggc ctnnagnatc aattggcttt cttncncqqq 720 nctngcncca attttctccn ggggcctncc tttcangggg tnaagaanaa atttcaaatt 780 caacctcggt tccccttnaa cntcntnctg gaaggget 818

<210> 206 <211> 927

<212> DNA

<213> Homo Sapiens

<400> 206

cagccatgga cgccatcaag aagaagatgc agatgctgaa gctgqacaaq qaqaacqcca 60 tegacegege egageaggee gaageegaca agaageaage tgaqqacege tqeaaqeaqe 120 tqqaqqaqga gcagcaggcc ctccagaaga agctgaaggg gacagaggat gaggtggaaa 180 agtattctga atccgtgaag gaggcccagg agaaactgga gcaggccgag aagaaggcca 240 ctgatgctga ggcagatgtg gcctccctga accgccgcat tcagctggtt gaggaggagc 300 tggaccgggc ccaggagcgc ctggctacag ccctgcagaa gctggaggag gccgagaagg 360 cggctgatga gagcgagaga ggaatgaagg tcatcgaaaa ccgggccatg aaggatgagg 420 agaagatgga actgcaggag atgcagctga aggaggccaa gcacatcgct gaggattcag 480 accgcaaata tgaagaggtg gccaggaagc tggtgatcct ggaaggagag ctggagcgct 540 cggaggagag ggctgaggtg gccgagagcc gagccagaca qctggaggag gaacttcgaa 600 ccatggacca ggccctcaag tccctgatgg cctcagagga ggagtattcc accaaagaag 660 ataaatatga agaggagatc aaactgttgg aggagaagct gaaggaggct gagacccgag 720 Cagagittige cqaqaqqict qiqqcaaaqt tqqaqaaaac catcqatqac ctagaaqaqa 780 cettggecag tgccaaggag gagaacgteg agattcacca gacettggac cagaccetge 840 tggaactcaa caacctgtga gggccagccc cacccccagc caggctatgg ttgccacccc 900 aacccaataa aactgatgtt actagcc 927

<210> 207 <211> 910

<212> DNA <213> Homo Sapiens

<400> 207

ggaagatggc ggcggccgtt ccacageggg cgtggaccgt ggagcagctg cgcagtgagc 60 agetgeccaa gaaggacatt ateaagttte tgeaggaaca eggtteagat tegtteettg 120 cagaacataa attattagga aacattaaaa atgtggccaa gacagctaac aaggaccact 180 tggttacagc ctataaccat ctttttgaaa ctaagcgttt taagggtact gaaagtataa 240 gtaaagtgtc tgagcaagta aaaaatgtga agcttaatga agataaaccc aaagaaacca 300 agtotgaaga gaccotggat gagggtocac caaaatatac taaatotgtt otgaaaaagg 360 gagataaaac caactttccc aaaaagggag atgttgttca ctgctggtat acaggaacac 420 tacaaqatgg gactgttttt gatactaata ttcaaacaag tgcaaagaag aagaaaaatg 480

```
ccaagcettt aagttttaag gteggagtag gcaaagttat cagaggatgg gatgaagete
                                                                      540
tottgactat gagtaaagga gaaaangoto gactggagat tgaaccagaa tgggcttacg
                                                                      600
gaaagaaagg acagcctgat gccaaaattc caccaaatgc aaaactcact tttgaagtgg
                                                                      660
nantatqqga tattgattga aatagcagtg cntcagctcn aggntattag caacaatgat
                                                                      720
taaaacntgg ncttgaaaga aaatttcaca actagttnag aaacttgtta ccaaatggta
                                                                      780
aaggaaaaag tcaactggga aaaattcaag ggngttaana aaaanttggt ttacctgggg
                                                                      840
cccaagcett ttgngaaaaa aaaanceet tatgaaance cengggeeca aaaanaettt
                                                                      900
tccnaaaacc
                                                                      910
      <210> 208
      <211> 745
      <212> DNA
      <213> Homo Sapiens
      <400> 208
qacaqtqqat caatttttat tgagccactt aagtttacaa catgaggtaa aaggaaaaag
                                                                       60
ttctccttga ccagtatttt acacagctgt aggaaagtat tttagaccag ggattcataa
                                                                      120
gggatttatc tctcaaaagc tgggaccaag taaacaaatt ttattaactc cttqaatttt
                                                                      180
ccaqttqact cttcctttac aatagtaaca agttctaact agttgtgtaa atttcttcaa
                                                                      240
ggccaagttt tatcattgtt gctaatatcc ttagagetga agcactgcta tttcaatcaa
                                                                      300
tatccactaa ttccacttca aaagtgagtt ttgcatttgg tggaattttg gcatcaggct
gtcctttctt tccgtaagcc cattctggtt caatctccag tcgagccttt tctcctttac
                                                                     420
tcatagtcaa gagagettca teccateete tgataaettt geetaeteeg aeettaaaae
                                                                      480
ttaaaggett ggcatttttc ttcttctttg cacttgtttg aatattagta tcaaaaacag
                                                                      540
tcccatcttg tagtgttcct gtataccaag caagtgaaca acatcnccct ttttgggaaa
                                                                      600
qttqqtttaa cccccttttt cagaacagat ttaagtanat tttgggggac cctcanccaa
                                                                      660
ggggtcnctt canaactggg tttccttggg gtttaacctt cattnagcct canaattttt
                                                                      720
tacntggccn cagacacttt tactt
                                                                      745
     <210> 209
      <211> 965
      <212> DNA
      <213> Homo Sapiens
      <400> 209
ggaagatggc ggcggccgtt ccacagcggg cgtggaccgt ggagcagctg cgcagtgagc
                                                                       60
agetgeecaa gaaggacatt atcaagttte tgeaggaaca eggtteagat tegtttettg
                                                                      120
cagaacataa attattagga aacattaaaa atgtggccaa gacagctaac aaggaccact
                                                                      180
tggttacagc ctataaccat ctttttgaaa ctaagcgttt taagggtact gaaagtataa
                                                                      240
gtaaagtgtc tgagcaagta aaaaatgtga agcttaatga agataaaccc aaagaaacca
                                                                      300
aqtctqaaga gaccctgqat qagggtccac caaaatatac taaatctgtt ctgaaaaaqq
                                                                      360
gagataaaac caactttccc aaaaagggag atgttgttca ctgctggtat acaggaacac
                                                                      420
tacaagatgg gactgttttt gatactaata ttcaaacaag tgcaaagaag aagaaaaatg
                                                                      480
ccaaqccttt aagttttaag gtcggagtag gcaaagttat cagaggatgg gatgaaqctc
                                                                      540
tettgactat gagtaaagga gaaaaggete gactggagat tgaaccaaga atgggettac
                                                                      600
ggaaagaaag gacagcctga tgccaaaatt ccaccaaatg caaaactcac ttttgaagtg
                                                                      660
gaattagtgg atattgattg aaatagcagt gcttcagcct ccaaqqqata ttaqcaacaa
                                                                      720
tgaataaaac tttggncttg angaaaattt acacaaccta gtttagaacc ttgttactat
                                                                      780
tgttaaagga aagaagtcaa ctgggnaaaa ttcaagggag ttaataaaat ttgtttactt
                                                                      840
ggncccagcc ttttgagaga taaatccctt angaaancct ggtccnaaaa tactttccta
                                                                      900
aagnotgtgt taaatacong ggncaagggn gaaacttttt cootttacon caagggtggt
                                                                      960
aaact
                                                                      965
      <210> 210
```

<210> 210

<212> DNA

<213> Homo Sapiens

<400> 210

caagacagtg gatcaatttt tattgagcca cttaagttta caacatgagg taaaaggaaa 60 aagttctcct tgaccagtat tttacacagc tgtaqqaaaq tattttaqac caqqqattca 120 taagggattt atctctcaaa agctgggacc aagtaaacaa attttattaa ctccttgaat 180 tttccagttg actcttcctt tacaatagta acaagttcta actagttgtg taaatttctt 240 caaggccaag ttttatcatt gttgctaata tccttagagc tgaagcactg ctatttcaat 300 caatatccac taattccact tcaaaagtga gttttgcatt tggtggaatt ttggcatcag 360 getgteettt ettteegtaa geccattetg gtteaatete cagtegagee tttteteett 420 tactcatagt caagagaget teatcceate etetgataac tttgeetaet eegacettaa 480 aacttaaagg cttggcattt ttcttcttct ttgcacttgt ttgaatatta gtatcaaaaa 540 cagteceate ttgtagtgtt cetgtatace angeagtgaa caacatetee etttttggga 600 aagtttgggt ttaactccct tttttcagaa caagatttag taaaattttg gnnggaccct 660 caatccaagg gtctcttcaa nacttgggtt cctttggggt ttaancctca attaagcctc 720 acaatttttt acttggctca agaaancntt tacttaaacc tttcaggtac cetttaaaaa 780 necttangtt ttaaaaaaaa tgggttataa gggetggtaa cenaaggttg ggeeettggt 840 aaccngttct tggggcaaaa tttttaa 867

<210> 211

<211> 972

<212> DNA

<213> Homo Sapiens

<400> 211

ggaagatggc ggeggccgtt ccacageggg cgtggacegt ggaqcagetg cqcaqtgaqc 60 agetgeecaa gaaggacatt atcaagttte tgeaggaaca eggtteagat tegtttettg 120 cagaacataa attattagga aacattaaaa atgtggccaa gacagctaac aaggaccact 180 tggttacage ctataaccat ctttttgaaa ctaagegttt taagggtact gaaagtataa 240 gtaaagtgtc tgagcaagta aaaaatgtga agcttaatga agataaaccc aaagaaacca 300 agtotgaaga gaccotggat qaqqqtocac caaaatatac taaatotqtt otqaaaaagg 360 gagataaaac caactttccc aaaaagggag atgttgttca ctgctggtat acaggaacac 420 tacaagatgg gactgttttt gatactaata ttcaaacaag tgcaaagaag aagaaaaatg 480 ccaagcettt aagttttaag gteggagtag gcaaagttat cagaggatgg gatgaagete 540 tettgactat gagtaaagga gaaaaggete gactggagat tgaaccagaa tgggettacg 600 gaaagaaagg acagcctgat gccaaaattc caccaaatgc aaaactcact tttgaagtgg 660 aattagtgga tattgattga aatagcagtg cttcagctct aaggatatta gcaacaatga 720 taaaacttgg ccttgaagaa atttacacaa ctagttagaa cttgttacta ttgtaaagga 780 agagtcaact ggaaaattca aggagttaat aaaatttgtt tacttggtcc cagcttttga 840 gagataaatc ccttatgaat ccctggtcta aaatactttc ctacaqctqt qtaaaatact 900 ggtcaaggag aactttttcc ttttacctca tgttgtaaac ttaagtggct caataaaaat 960 tgatccactg to 972

<210> 212

<211> 817

<212> DNA <213> Homo Sapiens

<400> 212

aacggctcta agggttatgc ctttgtccac ttcgagaccc aagaggctgc cgacaaggcc fatcaggaaga tgaatgcgat gctcctcaat gaccgcaaag tatttgtggg cagattcaac 120 tctcgcaaag agcgggaagc tgagcttgag gccaaagcca aggaattcac caatgtttat 180 atcaaaaaact ttggggaaga ggtggatgat gagagtctga aagagctatt cagtcagttt 240 ggtaagaccc taagtgtcaa ggtgagaga gatcccaatg ggaaatccaa aggctttgga 300

```
tttgtgagtt acgaaaaaca cgaggatgcc aataaggctg tggaagagat gaatggaaaa
                                                                      360
gaaataagtg gtaaaatcat atttgtaggc cgtgcacaaa agaaagtaga acggcaggca
                                                                      420
gagttaaaac ggaaatttga acagttgaaa caggagagaa ttagtcgata tcagggggtg
                                                                      480
aatototaca ttaagaactt ggatgacact attgatgatg agaaattaag gaaagaattt
                                                                      540
teteettttg gatcaattac cagtgetaag gtaatgetgg aggatggaag aagcaaaggg
                                                                      600
tttggcttcg tctgcttctc atctcctgaa gaancaacca aagcagtcac tggagatgaa
tggacgcatt ttggggctcc aaccactata tgttgccctg gccccanagg aagggaanag
                                                                      720
aqaaaggntc accttgacca accagtttta tgcaacgaan tggctgggaa tngagaacca
                                                                      780
cttcccngcc aatgccaatc tttaaantca gnttcca
                                                                      817
     <210> 213
     <211> 756
      <212> DNA
      <213> Homo Sapiens
      <400> 213
ctttgatgtg attaagggaa agccaatccg catcatgtgg tctcagaggg atccetcttt
gagaaaatct ggtgtgggaa acgtcttcat caagaacctg gacaaatcta tagataacaa
                                                                      120
ggcactttat gatacttttt ctgcttttgg aaacatactg tcctgcaagg tggtgtgtga
                                                                      180
tgagaacggc tctaagggtt atgcctttgt ccacttcgag acccaagagg ctgccgacaa
                                                                      240
ggccatcgag aagatgaatg gcatgctcct caatgaccgc aaagtatttg tgggcagatt
caagtetege aaagageggg aagetgaget tggagecaaa gecaaggaat teaceaatgt
                                                                      360
ttatatcaaa aactttgggg aagaggtgga tgatgagagt ctgaaagagc tattcagtca
                                                                      420
gtttggtaag accctaagtg tcaaggtgat gagagatccc aatgggaaat ccaaaggctt
                                                                      480
tggctttgtg agttacgaaa aacacgagga tgccaataag gctgtggaag agatgaatgg
                                                                      540
aaaagaaata agtggtaaaa tcatatttgt aggccgtgca caaaagaaag tagaacggca
                                                                      600
agcagagtta aaacggaaat ttgaacagtt gaaacaggag agaattagtc gatatcangg
                                                                      660
ggtgaatccc cacattaaga acttggatga cactattgat gatgaagaaa attaaggaaa
                                                                      720
agaattttcn ccntttggga tnaattaaca agttgc
                                                                      756
     <210> 214
     <211> 728
     <212> DNA
      <213> Homo Sapiens
      <400> 214
atggagattt tttttcttta ttgggaaacg taagacttgg gtacatcaaa taaaaccaat
                                                                       60
ttctggggga aaaaatcaaa ncccacaata aaaaaaaagt taacactgtc tgggccacag
                                                                      120
cagaacccaa agaacatatt cgtataattg aaaaattcta ggtgcttcat aattgacctt
                                                                      180
ttgatacaaa atgacctatt aaatttgcaa tttgtaatcc ttggtgttga ggtccatagg
                                                                      240
acaagctagg aagtcttcaa accttgagtt gaattccata aggggttatt tggcttttga
                                                                      300
ateggttttt cettgtetaa gaggtageag cageaacage geceaectte tgggcagett
                                                                      360
ctttcttggc atgatgagcc tgtagaactg ctacagcttc atccaccttg gagcggagag
                                                                      420
actoggggga ctctaacatg tgcagcagct canagttgtc tatctccagc agcattcccg
                                                                      480
tgatcttccc agccagattt gaatgcattg tttggatgan tgggaacaag cgttctccca
                                                                      540
geatetgett etgtteetgg gggggtgetg canecaacag gaggeaatca ntggnteeng
                                                                      600
gecetgeaca tggacegeaa ggetggggtg cetgeaaaan getgtatgge aaggatgaag
                                                                      660
ggctgccgac actgggaagg cggtattngt aggggggcaa aaancccggg gaagcancag
                                                                      720
caacaaca
                                                                      728
```

<210> 215

<211> 710

<212> DNA

<213> Homo Sapiens

```
<400> 215
atgganattt tttttcttta ttgggaaacg taagacttgg gtacatcaaa taaaaccaaa
                                                                       60
atctggggga aaaaatcaaa acccacaata aaaaaaaagt taacactgtc tgggccacag
                                                                      120
canaacccaa agaacatatt cgtataattg aaaaattcta ggtgcttcan aattqacctt
                                                                      180
ttgatacaaa atgacctatt aaatttgcaa tttgtaancc ttggtgttga ggtccatagg
                                                                      240
acaagctagg aagtetteaa acettgagtt gaatteeana aggggttatt tggettttga
                                                                      300
ateggttttt eettgtetaa naggtageag eageaacage geecacette tgggeagett
                                                                      360
ctttcttggc atgatgagcc tgtanaactg ctacagcttc atccaccttg gagcgganag
                                                                      420
actoggggga ctotaacatg tgcagcagct canagttgto tatotocago aqcattcccq
                                                                      480
tgatcttccc agccagattt gaatgcattg tttqqatqan tqqqaacaaq cqttctccca
                                                                      540
geatetgett etgtteetgn gggggtgetg canceangea tggaggeaan teagtggete
                                                                      600
ctgcccctgc acaatggacc gcaaggctgg ggggtgcctg canaaggctg tttgqqcaaq
                                                                      660
gangaagggc ctgcggaana ctgggangcg tatttgttan ggggggcaaa
                                                                      710
      <210> 216
      <211> 824
      <212> DNA
      <213> Homo Sapiens
      <400> 216
catggcctcc ctgtacgtgg gcgacctgca ttcggacgtc accgaggcca tgctgtacga
                                                                       60
aaagttcagc cccgcggggc ctgtgctgtc catccgggtc tgccgcgata tgatcacccg
                                                                      120
cogetecetg ggetatgeet acgteaactt ccagcageeg geogaegetg ageggettt
                                                                      180
ggacaccatg aactitgatg tgattaaggg aaagccaatc cgcatcatgt ggtctcagag
                                                                      240
ggatecetet ttgagaaaat etggtgtggg aaaegtette atcaagaace tggacaaate
                                                                      300
tatagataac aaggcacttt atgatacttt ttctgctttt ggaaacatac tgtcctqcaa
                                                                      360
ggtggtgtgt gatgagaacg gctctaaggg ttatgccttt gtccacttcg aqacccaaqa
                                                                      420
ggctgccgac aaggccatcg agaagatgaa tggcatgctc ctcaatgacc gcaaagtatt
                                                                      480
tgtgggcaga ttcaagtctc gcaaagagcg ggaagctgag cttggagcca aagccaagga
                                                                      540
attcaccaat gtttatatca aaaactttgg ggaanaggtg gatgatgaga gtctgaaaga
                                                                      600
agctattcan tcaagtttgg taagacccta agtgtcaang tgatgagaga tccaatggga
                                                                      660
aatccaaaag gctttgggct ttgtgagttn acgaaaaaca cnaggatgcc aataaggctg
                                                                      720
ttggaaagaa atgaatggga aaagaaataa antggtaaaa tcataatttg tagggccgtn
                                                                      780
cacaaaaaga aagtttaaac gggnaggcaa aatttaaaac cggg
                                                                      824
      <210> 217
      <211> 749
      <212> DNA
      <213> Homo Sapiens
      <400> 217
atggagattt tttttcttta ttgggaaacg taagacttgg gtacatcaaa taaaaccaat
                                                                       60
ttctggggga aaaaatcaaa acccacaata aaaaaaaagt taacactgtc tgggccacag
                                                                      120
cagaacccaa agaacatatt cgtataattg aaaaattcta ggtgcttcat aattgacctt
                                                                      180
ttgatacaaa atgacctatt aaatttgcaa tttgtaatcc ttggtgttga ggtccatagg
                                                                      240
acaagctagg aagtetteaa acettgagtt gaatteeata aqqqqttatt tqqettttga
                                                                      300
ateggttttt cettgtetaa gaggtageag cagcaacage geccacette tgggcagett
                                                                      360
ctttcttggc atgatgagcc tgtagaactg ctacagcttc atccaccttg gagcggagag
                                                                      420
actoggggga ctctaacatg tgcagcagct cagagttgtc tatctccagc agcattcccq
                                                                      480
tgatcttccc agccaagatt tgaatgcatt gtttggatga gtgggaacaa gcgttctccc
                                                                      540
agcatetgen tetgtteetg ggggggtget geatecagea tgggangean teagtggete
                                                                      600
ctgcccctgc acatgggacc gcaaggctgg ggtgcctgca naggctgtat gggaaggatg
                                                                      660
nagggctgcc ggncaactgg ganggcgtat ttgtaggggg caaacaagcc cgggqaaqca
                                                                      720
```

749

nccagcagca acancaacng cttggcgcc

<210> 218 <211> 600

<212> DNA

<213> Homo Sapiens

<400> 218

ctttattggg aaacgtaaga cttgggtaca tcaaataaaa ccaatttctg ggggaaaaaa 60 tcaaaaccca caataaaaaa aaagttaaca ctgtctgggc cacagcagaa cccaaagaac 120 atattegtat aattgaaaaa ttetaggtge tteataattg acettttgat acaaaatgae 180 ctattaaatt tgcaatttgt aatcettggt gttgaggtcc ataggacaag ctaggaaqtc 240 ttcaaacctt gagttgaatt ccataagggg ttatttggct tttgaatcgg tttttccttg 300 totaaqaqqt aqcancaqca acaqcqccca cottotqqqc aqcttottto ttqqcatqat 360 gancetgtag aactgetaca getteatena eettggageg gngagaeteg ggggaeteta 420 acatgtgcag cagctcagag ttgtcnatct ccaagcagca ttcccgtgat cttcccaqcc 480 anatttgaat gcattgtttq qqatqanqtq qqqaanaaqc qttctcncaq cannenqctt 540 engqtneenn qqaqqqqqt qentqeaaqe ceaqeattqa aqqeaaqtte antqqetect 600

<210> 219

<211> 1077

<212> DNA

<213> Homo Sapiens

<400> 219

catggcctcc ctgtacgtgg gcgacctgca ttcggacgtc accgaggcca tgctgtacga 60 aaagttcagc cccgcggggc ctgtgctgtc catccqqqtc tqccqcqata tqatcacccq 120 cogetecctg ggetatgeet acgteaactt ccagcageeg geogaegetg agegggettt 180 ggacaccatg aactitgatg tgattaaggg aaagccaatc cgcatcatgt ggtctcagag 240 ggatecetet ttgagaaaat etggtgtggg aaaegtette ateaagaace tggacaaate 300 tatagataac aaggcacttt atgatacttt ttctgctttt ggaaacatac tgtcctgcaa 360 ggtggtgtgt gatgagaacg gctctaaggg ttatgccttt qtccacttcg aqacccaaqa 420 ggctgccgac aaggccatcg agaagatgaa tqqcatgctc ctcaatqacc qcaaaqtatt 480 tgtgggcaga ttcaagtctc gcaaaqagcq qqaaqctqaq cttqqaqcca aaqccaaqqa 540 attcaccaat gtttatatca aaaactttgg ggaagaggtg gatgatgaga gtctgaaaga 600 gctattcagt cagtttggta agaccctaag tgtcaaggtg atgagagatc ccaatgggaa 660 atccaaaggc tttggctttg tgagttacga aaaacacgag gatgccaata aggctgtgga 720 agagatgaat ggaaaagaaa taagtggtaa aatcatattt gtaggccgtg cacaaaagaa 780 agtagaacgg caagcagagt taaaacggaa atttgaacag ttgaaacagg agagaattag 840 togatatoan ggggtgaato cocacattaa gaacttggat gacactattg atgatgagaa 900 attaaggaaa gaattttctc cttttqqatc aattaccaqt qctaaqqtaa tqctqqaqqa 960 tggaagaagc aaagggtttg gcttcgtctg cttctcatct cctgaagaan caaccaaagc 1020 agtcactgga gatgaatgga cgcattttgg ggctccaacc actatatgtt gccctgg 1077

<210> 220

<211> 1007

<212> DNA

<213> Homo Sapiens

<400> 220

actacatega tegegtggae gagecettgt eetgetetta tgtgetgaee attegeaete 60 eteggetetg eeceaaece tecteegge eeceaaeca tgtggaaegae gagecatee 120 tettgetgaece tteeetaeag eetgaggaat acatggageta egtteagagg eaagecgaet 180 caaageagta tggagataaa ateatagagg agetgeaaga tetaggeece eaagtgtgga 240 gtgagaecaa gtetggggtg geaececaaa agatggeagg tgegageecg acaaggatg 300 acagtaagga eteagatte tggaagatee taaatgaeg agaggaecag geeceaggag 360 gggaagaaggt geeggetgag gagaagaat teagettetg ggaagaaggt geeggetgag gagaaggae caagecetga gggaagaagat teagettetg 420

```
qtqctcccaa tqattttcaq aacaacqtqc aqqtcaaaqt cattcqaaqc cctqcqqatt
                                                                      480
tgattcgatt catagaggag ctgaaaggtg gaacaaaaaa ggggaagcca aatataggcc
                                                                      540
aaqaqcaqcc tqtqqatgat gctgcagaag tccctcagag ggaaccagag aaggaaaggg
                                                                      600
gtgatccaga acggcagaga gagatggaag aagaggagga tgaggatgag gatgaggatg
                                                                      660
aaqatqaqga tgaacggcag ttactgggaq aatttgagaa nqaactqqaa qqqatcctqc
                                                                      720
ttccqtcaqa ccqaqaccqq ctccqttcqq aqqtqaanqc tqqcatqqaq ccqqqaactq
                                                                      780
gnaaacatca teeaggagac angagaaaga netgggacce anatgggget gaagaangga
                                                                      840
teagaateeg ggategggea atgetggete teaaaateaa eteteaacaa anteattaaa
                                                                      900
aagactggag ggaaaaacaa gagttccaaa ncctggtgaa nnaagcncat aaaaaaqaaq
                                                                      960
gttgtcccaa aaaagnctcc cccatcaanc caaccctnca gggaaaa
                                                                     1007
      <210> 221
      <211> 833
      <212> DNA
      <213> Homo Sapiens
      <400> 221
ccqactcaaa qcaqtatqqa qataaaatca taqaqqaqct qcaaqatcta qqcccccaaq
                                                                       60
tgtggagtga gaccaagtct ggggtggcac cccaaaagat ggcaggtgcg agcccgacca
                                                                      120
aggatgacag taaggactca gatttetgga agatgettaa tgagecagag gaecaggeee
                                                                      180
caggagggga ggaggtgeeg getgaggage aggaeecaag eectgaggea geaqatteag
                                                                      240
cttctggtgc tcccaatgat tttcagaaca acgtgcaggt caaagtcatt cqaaqcctq
                                                                      300
cggatttgat tcgattcata gaggagctga aaggtggaac aaaaaagggg aagccaaata
                                                                      360
taggecaaga geagectgtg gatgatgetg cagaagteee teagagggaa eeagagaagg
                                                                      420
aaaggggtga tccagaacgg cagagagaga tggaagaaga ggaggatgag gatgaggatg
                                                                      480
aggatgaaga tgaggatgaa cggcagttac tgggagaatt tgagaangaa ctqqaaqqqa
                                                                      540
tectgettee gteagacega gaeeggetee gtteggaggt gaangetgge atggageegg
                                                                      600
gaactggnaa acatcatcca qgagacanga gaaaganctg ggacccanat qqqqctqaaq
                                                                      660
aanggatcag aatccgggat cgggcaatgc tggctctcaa aatcaactct caacaaantc
                                                                      720
attaaaaaga ctggagggaa aaacaagagt tccaaancct ggtgaannaa gcncataaaa
                                                                      780
aagaaqqttq tcccaaaaaa qnctcccca tcaanccaac cctncaqqqa aaa
                                                                      833
      <210> 222
      <211> 745
      <212> DNA
      <213> Homo Sapiens
      <400> 222
ggattgatgg tocagttgtt tatttagaaa cetgattgtt caagaacatg gtgggtgett
                                                                       60
cacacctttt tcactgggat tgtgctggag gtgataggca gcattctacc atttcctcag
                                                                      120
caacagaggt gaaggctcct caactcagaa gcacaaattg taggggacag ggtgggcagg
                                                                      180
gaaagggaga aggaaatccc aaggcaattc aatagaagag ggtaaaacga ctccaaacat
                                                                      240
cactaagggc aggtgggggc ctgcttgctc agtgcctgct aagtgtcctg ccctccttgc
                                                                      300
tetetetace cacetecact caaaagatee tactgaatet eeaggtagge ageagggaat
                                                                      360
atcctatcat taggggacaa taacaggaaa agccacagag gagaggaaga ggattgagtg
                                                                      420
agagttcagg agagcaaata tcacaggccc qqtqaqqtct caaqqtqqct qccaqcaqqq
                                                                       480
gcagcaagca ttcacccagg gcccccacac ccacagagtt gcccgagang tccacaagct
                                                                      540
cagctccact ctgctgtttg gccctcaagg gttccagggt ggggaagtgg ggaagaggca
                                                                      600
ngccagtcca ggaagatctg gattccgtga angggtcaag tgtagtgttg gtctcagaag
                                                                      660
tcaaattntc caagtcccct gttgccctcc ccacctggag aagccccana cccqqqqta
                                                                      720
attgetence anetecttet geege
                                                                      745
```

<210> 223

<211> 747

<212> DNA

<213> Homo Sapiens

<400> 223

actacatega tegegtagae qaqeeettat ectactetta tatacetaee attegeacte 60 cteggetetg ecceaecet etecteegge ecceaeceag tgetgeaecg eaggecatee 120 tetgteaccc tteectacag eetgaggagt acatggeeta egtteagagg caageeqact 180 caaaqcaqta tggaqataaa atcatagagg agctgcaaga tctaggcccc caaqtqtqqa 240 qtqaqaccaa gtctggggtg gcaccccaaa agatggcagg tgcgagcccg accaaggatg 300 acagtaagga ctcagatttc tggaagatgc ttaatgagcc agaggaccag gccccaggag 360 gggaggaggt gccggctgag gagcaggacc caagccctga ggcagcagat tcagcttctq 420 gtgeteceaa tgattttcag aacaacgtge aggtcaaagt cattegaage cetgeggatt 480 tgattcgatt catagaggag ctgaaaggtq qaacaaaaaa qqqqaaqcca aatataggcc 540 aagagcagcc tgtggatgat gctgcagaag tccctcagag ggaaccagag aangaaaggg 600 gtgatccaga acggcagaga gagatgggaa ngaagangan gatgaggatg aggatgaggg 660 atgaaagann aaggatgaaa cgggcaagtt actggggaan aattttgana aagggaactg 720 ggaaagggat tcctggettt ccgttca 747

<210> 224

<211> 618 <212> DNA

<212> DNA

<213> Homo Sapiens

<400> 224

gatggtccag ttgtttattt agaaacctga ttgttcaaga acatggtggg tgcttcacac 60 ctttttcgct gggattgtgc tggaggtgat aggcagcatt ctaccatttc ctcagcaaca 120 gaggtgaagg ctcctcaact cagaagcaca aattgtaggg gacagggtgg gcagggaaag 180 ggagaaggaa atcccaaggc aattcaatag aagagggtaa aacgactcca aacatcacta 240 agggcaggtg ggggcctgct tgctcagtgc ctgctaagtg tcctgccctc cttgctctct 300 ctacccacct ccactcaaaa gatcctactg aatctccagg tangcancan ggaatatcct 360 atcattaggg gacaatanca ggaaaagcca cagaggagag gaagaggatt qaqtqanaaq 420 ttcangacag caaattatca caggcccggt gaggtetcaa ngtgngetge caacaagggg 480 caancagcat tcacccangg gccccacacc caennnagtt gccccagagg tccacanctc 540 anceteccan etgeengttt ggeeeteaag gggttecaan gttegngaaa gtgggggagg 600 aaggcanccc anteccag 618

<210> 225 <211> 765

<212> DNA

<213> Homo Sapiens

<400> 225

caaacatcag agactgcatg ctggagagaa acttgaagaa tgtgagaaaa ccttcaqcaa 60 ggatgaggag cttagaaaag agcagagaac tcaccaggaa aagaaagttt attggtgtaa 120 tcagtgtagt aggaccttcc agggcagctc agatctcatc agacatcagg taactcatac 180 aagagagaaa ccatatgaat gtaaagaatg tgggaaaact caatcagage tcagacette 240 tgagacatca tagaattcac agtggagaaa aaccttacgt atgcaataaa tgtggggaat 300 cttttaggag cagctcagat cttattaaac accatcgtgt tcatactgga qaqaaacctc 360 atgaatgtag tgaatgtggg aaagtcttta gccagaggtc ccaccttgtc acacaccaga 420 aaatccacac tggagagaag ccctatcagt gcactgaatg tgaaaaagcc ttcaggcggc 480 gttcactcct tattcaacgt cggagaattc atagtggtga gaaaccctat gaatgtaaqq 540 aatgtgggaa actcttcatg tggcacacag ctttcctcaa acatcagaga ctgcatgctg 600 gagagaaact tgaagaatgt gagaaaacct tcagcaagga tganggagct taggggagag 660 cagaaaattc accanggaag agaaagcctt attgggngta atcagtgtgg tanggctttc 720 caagggcagc teangacete ategggecat caggtaacte aatac 765

<210> 226 <211> 791 <212> DNA <213> Homo Sapiens

<400> 226

tggatccaaa gcacccctgg cactgttqtt tatqqcccac ctcctqctqq qqcccccatq 60 gtgtatgggc ctccaccccc caacttctcc atccccttca tccctatggg tgtgctgcat 120 tgcaacgtcc ctgaacacca taacttagag aatgaagttt ctagattaga agacataatg 180 cagcatttaa aatcaaagaa gcgggaagaa aggtggatga gagcatccaa gcggcagtcg 240 gagaaagaaa tggaaqaact gcatcataat attqatqatc ttttqcaaqa qaaqaaaaqc 300 ttaqaqtqtq aaqtaqaaqa attacataqa actqtccaqa aacqtcaaca qcaaaaqqac 360 ttcattgatg gaaatgtaga gagtcttatg actgaactag aaatagaaaa atcactcaaa 420 catcatgaag atattgtaga tgaaattgag tgcattgaga agactcttct gaaacqtcqc 480 tcanagctca gggaagctga ccgactcctq qcaqaqqctq aqaqtqaact ttcatqcact 540 aaagaaaaga caaaaaatgc tgttgaaaag ttcactgatg ccaagagaag tttattgcaa 600 actgagtcag atgctgaggg aattagaaag gagagctcan gaaactgctg ttaanctcgt 660 caaanctgat cagcagctaa gatcgctcca agctgatgca aaaggatttg qancancaca 720 angatcaagc aagaagaaat cttgaaaaqa aattaacnaa aatttntnca qcaaaagact 780 cagacttcaa a 791

<210> 227 <211> 687 <212> DNA

<213> Homo Sapiens

<400> 227

gattgttatc ttttattttc atatgaaaaa tagattttaa gcaaaattca aaaataactc gacactataa aaanagaggg cettaagtae attetttttg ttaataagat ttaccagttt 120 gtaggttcaa atatgcagtt aaaatcactg ttttttttta aacatgttac qaaqattaaa 180 aaaaaaaagg ctcagccaca tgttggttta aattcccata tqcaactatt cccatatgta 240 ctatgtacaa gtgatttata aaaacattgg cattaatggt acaggcaaag taaactacag 300 tggagtttca naatctcagt tcactgcatc ttgattaaaa aaaccatgtg acattccaat 360 tatgaagtca gtgaggtagt ggaggtgttt tccttgaata tatttacaca agacagtatt 420 ceteatetgg etgaggeatt etttteegga ttttgteeaa gttganagte etetgtgagg 480 gaagactcca agctgagaca gactgggtga tgacqctqaa tctqcaaaqq tqcctqqtqa 540 ccaattcccc ctaanagcat cctacttgtc tcencaaact gtgntaaagt gccctctgtc 600 ctgccgcttt cctttaatna aaacttctgg cttngcttgg ggcanacagt gtcgganttg 660 gggccttgag tenggcttcc cggggaa 687

<210> 228

<211> 810

<212> DNA

<213> Homo Sapiens

<400> 228

gtctgggcag cgccaggcga tggccctgct gctggtgctc ctcgcctctt ggggcctggg 60 gcagtgaggg ggccggcggg cgtgggccga gtggccgcgg gcgccatgga gggggtgctg 120 tacaantgga ccaactatct gagcggttgg cagcetcgat ggtteettet etgtggggga 180 atattgtcct attatgattc tcctgaagat gcctggaaag gttgcaaagg gagcatacaa 240 atggcagtct gtgaaattca agttcattct gtagataata cacgcatgga cctqataatc 300 cctggggaac agtatttcta cctgaaqqcc aqaaqtqtqq ctqaaaqaca qcqqtqqctq 360 gtggccctgg gatcagccaa ggcttgcctg actgacagta ggacccagaa ggagaaagag 420 tttgctgaaa acactgaaaa cttgaaaacc aaaatgtcan aactaagact ctactgtgac 480 ctccttgttc ancaagtaga ttaaaacata agaagtgacc acaactggtg tgtccaattc 540

tgaggtaaag gagtottoca ototggttgt trogtangag ggaattgatg tgggaacttt getgaaatca anctgntata ctttttotga aagacecttg taagaattca tgcanatngc aaattgcage ottnaanoto otgaagoctn ottotaacog geactocaac canggaatna anctnaagot gggccaatgg otocaaagt coaacnaaag gttaaaanat occagotcaa atttgggong caaacaaagg gcaatccaac	600 660 720 780 810
<210> 229 <211> 552 <212> DNA <213> Homo Sapiens	
<400> 229	
gtaaatttgt ttgagttcat tgtagattct ggatattagc ccttttgtca gatgagtaga	60
ttgcaaaaat tttctcccat tctgtaggtt gcctgttcac tctgatggta gtttcccttg	120 180
ctgtgcggaa gctctttagt ttaattagat cccatttgtc aatttcggct tttgttgcca ttgctttcgg tgttttagac atgaagtcct tgcccatgcc tatgtcctga atggttttcc	240
taggttttct tctagggttt ttatggtttt aggtctaaca tttaagtctc gaatccatct	300
tgaattaatt tttgtataag gtgtaaggaa gggatccact ttcagctttc tacgtatggc	360
tagccagttt tcccancacc atttattaaa tagggaatcc tttccccant tcctgttttt	420
gtcangtttg tcaaagatca natggctgta natatgcanc attatttccg agggctctgt	480
tengttecat tggtetacat tteegttttg gtteengtae catgetgttt tttgttaeng	540
gtanaccttg gt	552
<210> 230	
<211> 842	
<212> DNA	
<213> Homo Sapiens	
<400> 230	
ctcatcagtt agaagaaaaa gaaaatcaaa ttaagagcat gaaggctgat attgaaagtc	60
ttgtaacaga aaaagaagcc ttacagaagg aaggaggcaa tcagcaacag gctgcttctg	120
aaaaggagtc ttgtataaca cagttgaaga aagagttatc tgaaaacatc aatgctgtca	180
cattgatgaa agaagagett aaagaaaaaa aagttgagat tagcagtett agtaaacaac	240
taactgattt gaatgttcag cttcaaaata gcatcagcct atccgaaaaa gaagcagcca tttcatcact aagaaagcag tatgatgaag aaaaatgtga attgctggat caggtgcaag	300 360
atttatettt taaagttgae actetgagta aagagaaaat ttetgetett gageaggtag	420
atgactggtc caataaattc tcagaatgga agaagaaagc acagtcaaga tttacacagc	480
atcaaaacac tgttaaagaa ttgcagatcc agcttgagtt aaaatcaaag gaagcttatg	540
aaaaggatga gcagataaat ttattgaagg aagagcttga tcagcaaaat aaaagatttg	600
attgtttaaa gggtgaaatg gaagacgaca agagcaagat gggagaaaaa ggagtctaat	660
ttagaaacag agttaaagtc tcaaacagca agaattatgg gattagagga ccatattanc	720
caagaaaact atttggaaat tagagteett aaatngaaag tteettaaaa aattacaate	780
aacaaaaagg atattggacc acaaagnaat tgggtcaaaa aaccttcaac aantttcaag	840
ga	842
<210> 231	
<211> 781	
<212> DNA	
<213> Homo Sapiens	
<400> 231	
atatagtaaa taaactttat ttatctgttt ctcagagatg acactgccaa caatcacaga	60
tttgcataca atacagttat gtattggcta ttcacaattt acagtagtgt tttttcctct	120
gaaaaatata agtacaaaag ctaagtaaac aatgaggtac tgccatttgg gattttttac	180
atgtettage ttaaagaact ggtetttage aaatatteaa cagateaace tgaataaaat	240

```
agtcaattaa atgctctaat ttatcagaaa aaatccacta agtttcacct caaaatgtat
                                                                      300
tgcacaagtc tttttaaaaa atcaccctaa aaataaatag gaaaggtaag ccgttcttta
                                                                      360
aaaagaatgg atgaaaggaa tattatgtaa qcccataaaq caqqttaaqt tatcaaaata
                                                                      420
tottttaaac aacataaaac tottoocaaq agaaaaactga agaaaaaact atcaccattt
                                                                      480
ctccactgat aaaatctatt ttaaaggcag tctgcaactt atctgtgggc cagatttttc
                                                                      540
ttgggtcttt tggctacatg aggggccctg aatgacaact tcattctcaa agagtagcaa
                                                                      600
agtgtggaca agttttccaa gcagcangtc acccaatgtc actcttcctc aaqatqaaqq
                                                                      660
atcggagcca tgacacatgt ttaactaagc acagaccgga tgggtttacc cagaagatac
                                                                      720
cactggcaan ggtgaagtaa acatcaggcc gaggcaacct teccenttte aaaaantttt
                                                                      780
                                                                      781
      <210> 232
      <211> 767
      <212> DNA
      <213> Homo Sapiens
      <400> 232
gttatatagt aaataaactt tatttatctg tttctcagag atgacactgc caacaatcac
                                                                       60
agatttgcat acaatacagt tatgtattgg ctattcacaa tttacagtag tgttttttcc
                                                                      120
tetgaaaaat ataagtacaa aagetaagta aacaatgagg tactgecatt tgggattttt
                                                                      180
tacatgtott agottaaaga actggtottt agcaaatatt caacaqatca acctgaataa
                                                                      240
aatagtcaat taaatqctct aatttatcag aaaaaatcca ctaagtttca cctcaaaatg
                                                                      300
tattgcacaa gtctttttaa aaaatcaccc taaaaataaa taggaaaggt aagccgttct
                                                                      360
ttaaaaagaa tggatgaaag gaatattatg taagcccata aagcaggtta agttatcaaa
                                                                      420
atatetttta aacaacataa aactetteee aagagaaaac tgaagaaaaa actateacca
                                                                      480
tttctccact gataaaatct attttanagg cagtctqcaa cttatctqtq qqccaqattt
                                                                      540
ttettggtet tttggetaca tgaggggeee tgaatgaaaa etteattete aaaggagtag
                                                                      600
caagtgtggg acagttttcc aagcagcagt cacccaatgt cactcttctt caagatgaaa
                                                                      660
gateggagne atgacacatg ttaacctaag nacangactg gagggtttac neangaagat
                                                                      720
acactgcgaa ggtgaaagtt aaacatcaag ccgaggaacc tcccctt
                                                                      767
     <210> 233
      <211> 879
      <212> DNA
      <213> Homo Sapiens
      <400> 233
gggagtttaa tacacagetg gcacaaaagg aacaagaget ggaaatgace ataaaagaaa
                                                                       60
ctatcaataa ggcccaggag gtggaggctg aacttttaga aagccatcaa gaaqagacaa
                                                                      120
atcagttact taaaaaaatt gctgagaaag atgatqatct aaaacqaaca qccaaaagat
                                                                      180
atgaagaaat ccttgatgct cgtgaagaag aaatgactgc aaaagtaagg gacctgcaga
                                                                      240
ctcaacttga ggagctgcag aagaaatacc agcaaaagct agagcaggag gagaaccctq
                                                                      300
gcaatgataa tgtaacaatt atggagctac agacacagct agcacagaag acqactttaa
                                                                      360
tcagtgattc gaaattgaaa gagcaagagt tcaqaqaaca qattcacaat ttaqaagacc
                                                                      420
gtttgaagaa atatgaaaag aatgtatatg caacaactgt ggggacacct tacaaaggtg
                                                                      480
gcaatttgta ccatacqqat qtctcactct ttqqaqaacc taccqaattt qaqtatttqc
                                                                      540
qaaaaqtqct ttttqaqtat atqatqqqtc qtqaqactaa qaccatqqca aaagttataa
                                                                      600
ccaccgtact gaagttccct gatgatcaga ctcagaaaat tttgggaaaa gagaagatct
                                                                      660
cggctgatgt ttacttcacc tcgcagtggt atcctcnqaq taaaccatca qtcqtqccta
                                                                      720
agtttacatg tgtcatgggt ccgattcttc atcctttgaa gaaagagtgg acattggggt
                                                                      780
naceggetge ettgggaaaa etgteeanae nttgenaaen eettggggaa atggaagntt
                                                                      840
ttccanttca agggccccct caangnttgc ccaaacagg
                                                                      879
```

<210> 234 <211> 780

<212> DNA <213> Homo Sapiens

<400> 234

```
aaactttatt tatctgtttc tcagagatga cactgccaac aatcacagat ttgcatacaa
                                                                       60
tacagttatg tattggnnng gcacaattta cagtagtgtt ttttcctctg aaaaatataa
                                                                      120
gtacaaaagc taagtaaaca atgaggtact gccatttggg attttttaca tgtcttagct
                                                                      180
taaagaactg gtctttagca aatattcaac agatcaacct gaataaaata gtcaattaaa
                                                                      240
tgctctaatt tatcagaaaa aatccactaa gtttcacctc aaaatgtatt gcacaagtct
ttttaaaaaa tcaccctaaa aataaatagg aaaggtaagc cgttctttaa aaaqaatqqa
                                                                      360
tgaaaqqaat attatgtaag cccataaagc aggttaagtt atcaaaatat cttttaaaca
                                                                      420
acataaaact cttcccaaga gaaaactgaa gaaaaacta tcaccatttc tccactgata
                                                                      480
aaatctattt taaaggcagt otgoaactta totgtgggco agatttttot tggtottttg
                                                                      540
gctacatgag gggccctgaa tgaaaacttc attctcaaag agtagcaagt gtggacaagt
                                                                      600
tttccaagca gcagtcancc aatgtcactc ttcttcaaga tgaaagatcg gagccatgac
                                                                      660
acatgttaac taagcacaga cntgatggtt tactncagaa gattaccact qcnaaggtga
                                                                      720
aagttaaaca tcaaqncgaq catnentete tttccaaaaa ttttccqqqq tccqqattca
                                                                      780
```

<210> 235 <211> 780

<212> DNA

<213> Homo Sapiens

<400> 235

```
attctgaggg tatattaagt cagagtcagg ataaatcact tcggagaata gcagaattaa
                                                                       60
gagaggaget ccaaatggac cagcaggcaa agaaacatet gcaaqaqqaq tttqatqcat
                                                                      120
ctttagagga gaaagatcag tatatcagtg ttctccaaac tcaggtttct ctactgaaac
                                                                      180
aacgattacg aaatggcccg atgaatgttg atgtactgaa accacttcct cagetggaac
                                                                      240
cacaggetga agtetteact aaagaagaga atecagaaag tgatggagag ccagtagtgg
                                                                      300
aagatggaac ttctgtaaaa acactggaaa cactccagca aagagtgaag cgtcaagaga
                                                                      360
acctacttaa gcgttgtaag gaaacaattc agtcacataa ggaacaatgt acactattaa
                                                                      420
ctagtgaaaa agaagctctg caagaacaac tggatgaaag acttcaagaa ctagaaaaga
                                                                      480
taaaggacct tcatatggcc gagaagacta aacttatcac tcaqttgcqt qatqcaaaga
acttaattga acaqcttgaa caaggataag ggaatqqtaa tcqcaqaqac aaaacqtcaq
                                                                      600
atgcatgaaa ccctggaaat gaaagaagaa gaaattgctc aactccgtag tcgcatcaaa
                                                                      660
cagatgacta cccaagggag aggaattacg ggaacaagan agaaaagtcc gaaagaactg
                                                                      720
cntttgaggg aacttgaaaa agccttgagt acagnccaaa aanacagngg aagccaccgg
                                                                      780
```

<210> 236 <211> 711 <212> DNA

<213> Homo Sapiens

<400> 236

```
cttggttttt aaatttggtt tcatattcct cattcaaaat atgaatactg tcctccttgg
                                                                       60
ctgacaattt ctgtgtgagt atctcaattt ctttcttctg tccttctctc atttgtaaaa
                                                                      120
toatatttte etttteeace aagatttget ttgtetgtte etgttetttg ttaccatett
                                                                      180
caagtttgga ctcatagact tgggttaaag attttacttt ttgctccatt tcactatttt
                                                                      240
gtttttcaag ttgctgcatt aagtcctgca cctggatttt gtgagcatct aactcagtac
                                                                      300
aaacatottt ottttgtgot toaacttoag caacotgttt ggtaagaaga attotttotg
                                                                      360
tttccaaatc caacaacttc tgctqcaatt qqqccaactq ttcctcatat qcttttqtct
                                                                      420
geteatgtgt ggeactetgg taagaetgaa aaaegteeag ettageagat geetgetgga
                                                                      480
gttccccttc agacctttta atatctgcct ccaaattttc tacatqaqcc tqatqctctt
                                                                      540
tcaaatgctt gtccctttcc ttcaagagaa gctcaagttg nttaanttga tcttttaaag
                                                                      600
cetteteaan teeteeggga tanaaaaent egtgttettt naatgagaae ggteaaentg
                                                                      660
```

ceggetgggt gataantttt cegtteance ancettgg	ggg ctccaaattc c 711
.010. 025	
<210> 237 <211> 658	
<212> DNA	
<213> Homo Sapiens	
(215) Nomo Baptens	
<400> 237	
atagtaaata aactttattt atctgtttct cagagatg	ac actgccaaca atcacagatt 60
tgcatacaat acagttatgt attggctatt cacaattt	ac agtagtgttt tttectctga 120
aaaatataag tacaaaaget aagtaaacaa tgaggtac	etg ccatttggga ttttttacat 180
gtcttagctt aaagaactgg tctttagcaa atattcaa	aca gatcaacctg aataaaatag 240
tcaattaaat gctctaattt atcagaaaaa atccacta	
cacaagtett tttaaaaaat caccetaaan ataaatag	
aagaatggat gaaaggaata ttatgtaagc ccataaga	
cttttaaaca ncataaaact cttcccanga gaaaactg	
tecaetgata aaatetattt taaaggeagt etgeanet	
ttggnctttt ggctacatga gggggccctg gaatgaas	
gcnaggtgtg ggacaggttt tccaaggcaa gcaagtna	age caaatngtea getettee 658
<210> 238	
<211> 678	
<212> DNA	
<213> Homo Sapiens	
<400> 238	
gttatatagt aaataaactt tatttatctg tttctcag	gag atgacactgc caacaatcac 60
agatttgcat acaatacagt tatgtattgg ctattcac	
tctgaaaaat ataagtacaa aagctaagta aacaatga	
tacatgtett agettaaaga aetggtettt ageaaata	
aatagtcaat taaatgctct aatttatcag aaaaaato	
tattgcacaa gtctttttaa aaaatcaccc taaaaata	
ttaaaaagaa tggatgaaag gaatattatg taagccca	
atatetttta aacaacataa gaactettee caaggaga	
ncatttcnnc actgataaaa tctantttaa agggnagt	
atttttccgt ggggcttttg ggctacantn agggggc	
ncaaatgnng tagcaaattg tgggncangt ttttccaa	
tgtcactcct tecttcaa	678
<210> 239	
<211> 1402	
<212> DNA	
<213> Homo Sapiens	
<400> 239	
gggagtttaa tacacagctg gcacaaaagg aacaagag	
ctatcaataa ggcccaggag gtggaggctg aactttt	
atcagttact taaaaaaatt gctgagaaag atgatga	
atgaagaaat cettgatget egtgaagaag aaatgae	
ctcaacttga ggagctgcag aagaaatacc agcaaaa	
gcaatgataa tgtaacaatt atggagctac agacaca	
tcagtgattc gaaattgaaa gagcaagagt tcagaga	
gtttgaagaa atatgaaaag aatgtatatg caacaac	tgt ggggacacct tacaaaggtg 480
gcaatttgta ccatacggat gtctcactct ttggaga	
gaaaagtget ttttgagtat atgatgggte gtgagae	taa gaccatggca aaagttataa 600

ccaccgtact	gaagttccct	gatgatcaga	ctcagaaaat	tttggaaaga	gaagatgctc	660
ggctgatgtt	tacttcacct	cgcagtggta	tcttctgagt	aaaccatcag	tctgtgctta	720
				agtgacattg		780
				agttttcatt		840
				agttgcagac		900
				cagttttctc		960
				tttatgggct		1020
tcctttcatc	cattctttt	aaagaacggc	ttacctttcc	tatttattt	tagggtgatt	1080
ttttaaaaag	acttgtgcaa	tacattttga	ggtgaaactt	agtggatttt	ttctgataaa	1140
ttagagcatt	taattgacta	ttttattcag	gttgatctgt	tgaatatttg	ctaaagacca	1200
gttctttaag	ctaagacatg	taaaaaatcc	caaatggcag	tacctcattg	tttacttagc	1260
ttttgtactt	atattttca	gaggaaaaaa	cactactgta	aattgtgaat	agccaataca	1320
				atctctgaga		1380
	ttactatata					1402
<210	240					
<211>	760					
<212	> DNA					
<213:	Homo Sapie	ens				
<400:	240					
gtgcagtttc	tcttatattc	ctcacatatg	tgctttcatt	catctttcgc	aagtggagaa	60
aaaataatgg	cttttggtct	tttggctttt	ttattatctt	aatatgtgta	tccacaatta	120
tggtatcaac	tcaatatgaa	aaactcaact	taattttqtq	catgattttc	ataccttcct	180
				ctttatgaga		240
				tttaacaacc		300
				ggaaatgaag		360
aaataatgaa	taaagaccca	gttttcagaa	tetetecaeg	gagtagagaa	actcatccca	420
atccggaaga	gcccqaaqaa	gaagatgaag	atgttcaagc	tgaaagagtc	Caagcagcaa	480
atgcactcac	tgctccaaac	ttggaggagg	aaccagtcat	aactgcaagc	totttacaca	540
aggaatatta	tgagacaaag	aaaagttgct	tttcaacaag	aaagaagaaa	atagccatca	600
				ggattaccta		660
ggagetggta	aaaqtacttc	cattaaaatq	ataacntggg	tgcacaaagc	caaactgcan	720
		ggnagcagan		-55+		760
<210:	> 241					
<211:	> 745					
<212:	> DNA					
<213:	> Homo Sapie	ens				
<400	> 241					
aaaagtccan	caaagtttta	tttctaagaa	ataaacttgc	atataacccg	aacgtaacaa	60
cncnggtatt	acatcaatac	agctataaca	ttaatgcagc	aattatataa	cacaaaagtg	120
ctataatgac	atgggaaatg	ttcatgaact	gtgaggtgaa	aagatacaga	aaatgactat	180
				acattgaata		240
				ctancttctt		300
tcaatatgta	ctaaaattca	catgcattta	ttttataatc	agaatgtcat	tataattaaa	360
tgttangctg	tgccatttca	tcagtttatc	anacettett	atagtcaatg	tcacattaaa	420
ttagaatccq	agtaaataan	gtttaaaaat	anctgataca	tttgaagttc	aggetaaaaa	480
cctcatattt	ttatttgtaa	aatgttctca	ntqttaqctt	tattgataat	aaccgataac	540
caacctaata	ttgtangatt	tttaaattat	ttttaagcac	aaantagacc	catattaggg	600
atqaataaca	tqtcnqattt	tgtnaatttt	ggtcnacnac	ttttcccaaa	aatttccttg	660
tttccttcan	ccnaaatttt	taaaantgaa	aactgtatga	attatggaan	ggtttattaa	720
			50000		JJacouccua	120

745

aangtttncc tttggtaacc ngaag

<210> 242 <211> 818 <212> DNA <213> Homo Sapiens

<400> 242

gcaacgccgg ggcgcccgag gtctggaagg cgcagaaatg gagcaagagc cacaaaatgg 60 aqaacctgct gaaattaaga tcatcagaga agcatataag aaggcctttt tatttgttaa 120 caaaggtctg aatacagatg aattaggtca gaaggaagaa gcaaagaact actataagca 180 aggaatagga cacctgctca gagggatcag catttcatca aaagagtctg aacacacagg 240 tectgggtgg gaatetgeta gacagatgea acagaaaatg aaagaaacte tacagaatgt 300 acgcaccagg ctggaaattc tagagaaggg tcttgccact tctctgcaga atgatcttca 360 ggaggtgccc aagttatatc cagaatttcc acctaaagac atgtgtgaaa aattaccaga 420 geeteagtet tttagtteag eteeteagea tgetgaagta aatggaaaca eeteaactee 480 aagtgcaggg gcagttgctg cacctgcttc tctgtcttta ccatcacaaa gttgtccagc 540 agaageteet cetgettata eteeteaage tgetgaaggt cactacactg tateetatgg 600 aacagattct ggggagtttt catcagttqq aqaqqaqttt tataqqqaat cattctcagc 660 caacggcctc ttnagaacct taagggctgg gattcangat gaaattgatt ttgataccaa 720 atgggagtac anntttttt tgtaaateet geaangggga ngttatgean ettegtance 780 ccggggtacc ttcnaattgt gaagggtttt gggntaaa 818

<210> 243 <211> 799 <212> DNA

<213> Homo Sapiens

<400> 243

aatttettga agtaettttt taateeaatt aagetgataa taateaette gaattttaat 60 acaatacaat catgiticeca aattiteenag geteataaca atacagtete aatacaaaag 120 acgtaataat ctattttat tcattttaaa tcaaagaaac cattccattt cctaacaaac 180 aggtaagtta caaaagtagt ccattttact tttcatcagt ctttccctgt tttgaacaag 240 tetttttgag aattettagt tttagttttt gtttagetta cacactgaaa attttgagaa 300 gcatctaaaa aaatccacaa ttagtgcaaa aagaggggac aatactttaa gtcattcctt 360 ctataaaaag aattaaggtt actaaatgcc aatttttaag caaatatata gtttcctatt 420 tgccttctga aagacagcag atataaaaat agttcaatat taggtttaac aaggtttgaa 480 caacacatgt actatcaget ttattttacc tqcaaaaata ttttaqctac acttqqaaaa aaaataaact tgaqaatata acttcacatt tctaaggcca gatgcaagaa tacttaatct 600 tttcctttta aatagaagac atgccataaa atttatgaaa agttaatttg taggaatggn 660 atacatttaa aaaatacngg ttaaaccngg tgagggaatt ccacatttgg cctatttaac 720 aaaaatttta aaccaatttt caaaaggggc tttggggtaa aaagtngatt cccaagcaac 780 ntcaancant ttaaccttc 799

<210> 244 <211> 726 <212> DNA

<213> Homo Sapiens

<400> 244

gtgagttgag cgctgctgct ccgcggtga gtcaccgca cgctcccgg atcatggtgt 60 tctacttcac cagcagcagc gttaattcat ctgcctacac tatttacatg ggaaaagata 120 actatgatgt tccacacact tctggctcat gtatacctc gattacata gggagagaat atagaagaca 240 tcccaaagga agttctgatg gactgtgccc accttgtgaa ggccaatagc attcaaggct 300 gcaagaagaa caacgttaat gtgstataa ggcgagagaat taaccacaggc accatggac taacctgaag agacagatgaa caacgttaat gggctataa ggccagaaga ggtaaaaatt gtgsacagtg accatgggc 420

						400
ě	acctancagc agagaaagaa	tgcagagatc	gtgaagagag	gaatgagaaa	aaagcccaaa	540
1	tcaggaaat gaaaaagaga	gaaanagaag	aaatgaagaa	gaanagggaa	atggatgaac	600
	tangageta tteateacta					660
	gattcagat gaattcatgt					720
	atgtt					726
	3					720
	<210> 245					
	<211> 592					
	<212> DNA					
	<213> Homo Sapie	ens				
	<400> 245					
-	cagattaaa aaaatggtat	tttattataa	cttttaaaat	tgcggaacat	cagactgaat	60
ě	atcatcagac acatacacaa	aaccactcat	ctctaaagtc	attttctata	ccctctcaaa	120
ä	atttggccag tgagttttgc	ctcagggaat	tttccagttc	aaccccatac	accaacatgg	180
â	aataaatgga aacactagcc	ttttggtttt	gcccanagtt	ccaaagtgct	attacaggtg	240
9	gaatatetge tgeaggaagt	cattcttqct	actataaata	tgagtaaaat	gcttagttcc	300
	tctaaaatc ataattgcaa					360
	aggtaaccta catctcccaa					420
	enganaaatt acneetggge					480
	Caggcaacaa ctgccacagg					540
	ggnnactaa gatggaggcc					
	egginiaceaa gaeggaggee	cccggcncan	agggaancan	nggacacaaa	ac	592
	<210> 246					
	<211> 246					
	<212> DNA					
	<213> Homo Sapie	ens				
	<400> 246					
	aggatgaaga gctggagagc					60
	acgaagacac tgaggatgct					120
	tagaaatgaa ggaacagatg	tatcaggaca	aactggcttc	tctcaagagg	cagttgcaac	180
	aactgcaaga aggtacatta	caggaatatc	agaagagaat	gaaaaaacta	gatcagcagt	240
	acaaagagag gatacggaat					300
	gaaattacat taaagaaaag	aaggcagcag	tgaaagaatt	tgaagacaag	aaggttgagc	360
	tgaaagagaa cctgattgct	gagctagaag	aaaagaagaa	aatgattgaa	aatgaaaagc	420
	tgacaatgga actgactgga	gattctatgg	aggtgaaacc	tatcatgacc	agaaagttgc	480
	ggaggcgacc aaatgatccc	gtccccatcc	cagacaagag	gaggaaacct	getecagece	540
	agctaaacta tttgttaaca	qqatqaacaq	atcatggagg	atctgagaac	attaaataag	600
	cttaagtcac ccaagagacc					660
	geeggaatet eeaageeeea					720
	actatgacaa aaagatggtt					
	gacaaaccan gaaactgaag				angteaaagg	780
	gucuuuccan gaaaccgaag	cccgccinal	Laagtttccg	L		821
	<210> 247					
	<211> 639					
	<212> DNA					
	<213> Homo Sapie	ens				
	<400> 247					
	gttacacaaa gcatttattt					60
	gctaggacct ctgccccaag	cttctgggca	aatagtgaat	tggacgcgac	agggaaagta	120
	gctacgtgat ccactaatca	gattcaaaac	atgaaaatgc	actggagagt	gtatcccttc	180
	ctgctcttct ccatggtaga					240

```
actcagagga ggttttcaaa aacaagtata agcaaaaaat aaagaaataa aaggaaagta
                                                                      300
aatcaaaccc cccaatacgc ctgaaagtaa aacagtctca tggtgactga tgtctggaan
                                                                      360
aagttgaggc agaaaagact gacaaagttg gaangcatcc cggccacaaa agtgcccnaa
                                                                      420
aagaattcan tgcagtgete tecattteea aggetgagta actatteeca gntaagttaa
                                                                      480
catttttcna nttaaggana nancgaanac anntncatnt ctanatccca ctccagaaat
                                                                      540
anggtcaatg agaangangc actgtannna aagtcaagna getgganene cegggeggnt
                                                                      600
tnacccaaga geceggeget nnaageetgg geceaaget
                                                                      639
      <210> 248
      <211> 846
      <212> DNA
      <213> Homo Sapiens
      <400> 248
aacaggatgt caaaaattaa actgcqcttt ccatcacaat agaggacgat atgttgatgg
                                                                       60
ccttttccta cctccgagca aaactgtgtt gcccactgtg cctgagtcac cagaaqaqqa
                                                                      120
agtgaagget agccaacttt cagttcagca gaacaaattg tetgtccagt ccaatcette
                                                                      180
coctcagctg cggagcgtta tgaaagtaga aagttccqaa aatqttccta qccccacqca
                                                                      240
tccaccagtt gtaattaatg ctgcagatga tgatgaagat gatgatgatc agttttctga
                                                                      300
ggaaggtgat gaaaccaaaa cacctaccct gcaaccaact cctgaagttc acaatggatt
                                                                      360
acgagtgact totgtoogga aacctgoagt caatataaag caaggtgaat gtttgaattt
                                                                      420
tggaataaaa actcttgagg aaattaagtc aaagaaaatg aaggaaaaat ctaagaagca
                                                                      480
aggtgagggt tottcaggag tttccagtot tttactccae cetgageceg ttccaggtce
                                                                      540
tgaaaaagaa aatgtcagga ctgtggtgag gacagtaact ctctccacca aacaaggaga
                                                                      600
agaacccttg gttagattga gtcttactga gagactgggg aaacgaaaat tttcagcagg
                                                                      660
eggtgacagt gatectecat taaagegtag eetggeacan aggetaaggg aagaaagttg
                                                                      720
aagetecaga aactaacant gacaaaacac caangaaage teaagtttee aagteceeet
                                                                      780
aaaggggcga attaggcatg tcagccngga ttcaagataa tnaqqqatqc aacaaqatta
                                                                      840
aaggtt
                                                                      846
     <210> 249
      <211> 763
      <212> DNA
      <213> Homo Sapiens
      <400> 249
gactttccta catcagtttt atttaaaaca caaacaagta tttctctttc tgtaagggca
                                                                       60
aatggttcaa ataatgcgga acacgaaaca ttgactaata caagtgcttt aaatatgaaa
                                                                       120
caaaattatt ttttaaaaaa gcaaaagaat aaagaatata tacaaaaggg acctggaatc
                                                                       180
tgtaagctga ttccaaaaat gaaataagta gaaaatccat ggtgaaacct gaacattcta
                                                                      240
cctctgcttt ggagaagggc tatcatacaa cattcagtca gctgaagatg gattggtaga
                                                                       300
ggtgtgtcta tacataaact tcagtcattt ttgcttgtgc agaatcatcc caatcttccc
aagactgaat gggcagtcct gtggctttct tccttttcca tattcccaac aaggctacgt
                                                                       420
gaagttcaac tottgatgag cogottacaa cagcagttcc ttaggagcca acatgacagg
                                                                       480
tgggtcagat ttccctatga gaaacaaaac tggccaccta cagcaaaata tcaaaatggg
                                                                       540
taagtccttc cttcctcttc ctcctgatta tatacaacat atctcctttc aagactatta
                                                                      600
tttccatcat gccttattcc ttcacaaatc taaaccttga ngtgatatga angaaaccaa
                                                                      660
catcaagaaa agaaaactca attcagaaat gaanaaaacg ggcaggtata caatacaccc
                                                                      720
cagagcatct caatatcccc tgggacagnt acaattcagt gtt
                                                                      763
```

<210> 250

<211> 899

<212> DNA

<213> Homo Sapiens

720

```
<400> 250
attcaagtca agagatgtga gaccatgaga gagaagcaca tgcagaaaca gcaggagagg
                                                                        60
gaaaaatcag tettgacace tettegggga gatgtageet ettgcaatac ccaagtggca
                                                                       120
gagaaaccag tgctcactgc tgtgccagga atcacacggc acctgaccaa gcggcttccc
                                                                       180
acaaagtcat cccagaaggt ggaggtagaa acctcaggga ttggagactc attattgaat
                                                                       240
gtgaaatgtg cagcacagac cttggaaaaa aggggtaaag ctaaacccaa agtgaacqtq
                                                                       300
aagccatctg tggttaaagt tgtgtcatcc cccaaaattgg ccccaaaacg taaggcagtg
gagatgcacg etgetgtcat tgccgctgtg aagccactca gctccagcag tgtcctacag
                                                                       420
gaacccccag ccaaaaaggc agctgtggct gttgtcccgc ttgtctctga ggacaaatca
                                                                       480
gtcactgtgc ctgaagcaga aaatcctaga gacagtcttg tgctgcctcc aacccaqtcc
                                                                       540
tetteagatt ceteacece ggaggtgtet ggeeetteet cateceaaat gageatgaaa
                                                                       600
actegeegae teagetetge etcaacaagg aaageeecca etetetgtgg aggatgattt
                                                                       660
tgagaaacta atatgggaga tttcaaggag gcaaaattgg naactganat tgacctggat
                                                                       720
tctgggaaaa gatgaagatg accettcegg cttngngcet atcaannaaa ngattgntan
                                                                       780
cctgaaaggg tggtaattga nggacncctt naaaaaaaaa atccnccaaa aaaactnggg
                                                                       840
cettaantte naccaaatgg taacaatttn acctgagaat gnttaattte etttaggee
                                                                      899
      <210> 251
      <211> 755
      <212> DNA
      <213> Homo Sapiens
      <400> 251
cctacatcag ttttatttaa aacactaaca agtatttctc tttctgtaag ggcaaatggt
                                                                       60
tcaaataatg cggaacacga aacattgana nagacaagtg ctttaaatat gaaacaaaat
                                                                      120
tattttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag
                                                                      180
gtgattecaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctg
                                                                      240
ctttggagaa gggctatcat acaacattca gtcagctgaa gatggattgg tagaggtgtg
                                                                      300
totatacata aacttcagtc atttttgctt gtgcagaatc atcccaatct tcccaagact
                                                                      360
gaatgggcag teetgtgget ttetteettt teeatattee caacaagget aegtgaaqtt
                                                                      420
caactettga tgageegett acaacageag tteettagga gecaacatga caggtgggte
                                                                      480
agatttccct atgagaaaca aaactggcca cctacagcaa aatatcaaaa tgggtaaqtc
                                                                      540
ctteetteet etteeteetg attatataca acatatetee ttteaaagae tattatttee
                                                                      600
atcatgetta nteetteaca aatetaaace ttgaggtgat atgaaggaaa ccaacatcan
                                                                      660
gaaaagaaaa ctcaattcag aaatgaagaa aacgggcang tatacaattc anccccagaq
                                                                      720
caacccaata atccctgggc aaaagttcaa ttcaa
                                                                      755
      <210> 252
      <211> 753
      <212> DNA
      <213> Homo Sapiens
      <400> 252
cctacatcag ttttatttaa aacactaaca agtatttctc tttctgtaag ggcaaatggt
                                                                       60
tcaaataatg cggaacacga aacattgact aatacaagtg ctttaaatat gaaacaaaat
                                                                      120
tattttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag
                                                                      180
gtgattccaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctq
                                                                      240
ctttggagaa gggctatcat acaacattca gtcagctgaa gatggattgg tagaggtgtg
                                                                      300
totatacata aacttoagto atttttgott gtgcagaato atcccaatet toccaagact
                                                                      360
gaatgggcag teetgtgget ttetteettt teeatattee caacaagget acgtgaagtt
                                                                      420
caactettga tgageegett acaacageag tteettagga gecaacatga caggtgggte
                                                                      480
agatttccct atgagaaaca aaactggcca cctacagcaa aatatcaaaa tgggtaagtc
                                                                      540
etteetteet etteeteetg gattatatae aacatatete ettteaagae tattatttee
                                                                      600
atcatgenta atcetteaca aatctaaaac ettgagggtg atatgaaagg aaaccaacat
```

canagaaaag aaaactcaat tcaagaaaat taagaaaacc tggcaaggta tacaaataca

cccccaggag catcccaaat aatccctg	gg aaa	753
<210> 253		
<211> 793		
<212> DNA		
<213> Homo Sapiens		
<400> 253		
gactttccta catcagtttt atttaaaa	ca ctaacaagta tttcnctttc ngtaagggca	60
	ca ttgactaata caagtgcttt aaatatgaaa	120
caaaattatt ttttaaaaaa gcaaaaga	at aaagaatata tacaaaaggg acctggaatc	180
tgtaaggnga ttccaaaaac gaaataag	ta gaaaatccat ggtgaaacct gaanattcta	240
cctctgcttt gganaagggc tatcatac	aa cattcagtca gctgaanatg gattggtaaa	300
ggtgtgtcta tacataaact tcagtcat	tt ttgcttgtgc anaatcatcc caatcttccc	360
aagactgaat gggcagtcct gtggcttt	ct teetttteea natteecaae aaggetaegt	420
gaagttcaac tcttgatgag ccgcttac	aa cagcagttcc ttaggagcca acatgacagg	480
tgggtcagat ttccctatga gaaacaaa	ac tggccaccta cagcaaaata tcaaaatggg	540
taagtccttc cttcctcttc cncctgat	ta tatacaanat atctcctttc aagactatta	600
tttccatcat gcttattcct tcacanat	ct aaaccttgan gtgatatgaa nggnaaccaa	660
catcangaaa agaaaactca attcagna	at gaangaaaac tgggaggtat ttaatanacc	720
	na gttcaattca antgtacngc naaagnccat	780
aantaantat tgg		793
<210> 254		
<211> 625		
<212> DNA		
<213> Homo Sapiens		
<400> 254		
cctacatcag ttttatttaa aacactaa	ca agtatttete tttetgtaag ggcaaatggt	60
tcaaataatg cggaacacga aacattga	ct aatacaagtg ctttaaatat gaaacaaaat	120
tattittaa aaaagcaaaa gaataaag	aa tatatacaaa agggacctgg aatctgtaag	180
gtgattccaa aaacgaaata agtagaaa	at ccatggtgaa acctgaacat tctacctctg	240
ctttggagaa gggctatcat acaacatt	ca gtcagctgaa gatggattgg tanaggtgtg	300
tctatacata aacttcagtc atttttgc	ca gtcagctgaa gatggattgg tanaggtgtg tt gtgcagaatc atcccaatct tcccaagact	300 360
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct ttcttcct	ca gtcagctgaa gatggattgg tanaggtgtg ett gtgcagaatc atcccaatct tcccaagact ett tccatattcc caacaaggct acgtgaaqtt	300 360 420
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct ttcttcct caactcttga tgagccgctt acaacanc	ca gtcagctgaa gatggattgg tanaggtgtg itt gtgcagaatc atcccaatct tcccaagact itt tccatattcc caacaaggct acgtgaagtt iaa gttccttang agccaacatg acaggtqqqq	300 360 420 480
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct ttcttcct caactcttga tgagccgctt acaacanc tcangatttc cotatgagaa acaanact	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg gg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct ttcttcct caactcttga tgagccgctt acaacanc tcangatttc cotatgagaa acaanact	ca gtcagctgaa gatggattgg tanaggtgtg itt gtgcagaatc atcccaatct tcccaagact itt tccatattcc caacaaggct acgtgaagtt iaa gttccttang agccaacatg acaggtqqqq	300 360 420 480 540 600
totatacata aacttcagtc attittgc gaatgggcag toctgtggct ttottcot caactottga tgagcogott acaacanc tcangatttc cotatgagaa acaanact aagtcottco ttoctottco toctgaat anttocatca gggottaatc ottca	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg gg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct tcttcct caactcttga tgagccgctt acaacanc tcangatttc cctatgagaa acaanact aagtccttcc ttcctctctc tcctgaat anttccatca gggcttaatc cttca <210> 255	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg cgg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540 600
tctatacata aacttcagtc attittgc gaatgggcag tcctgtggct ttottcct caactcttga tgagccgctt acaacaan tcangatttc cctatgagaa acaanact aagtccttcc ttcctcttc tcctgaat anttccatca gggcttaatc cttca <210> 255 <211> 907	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg cgg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540 600
tctatacata aacttcagtc atttttgc gaatgggcag tcctgtggct tcttcct caactcttga tgagccgctt acaacanc tcangatttc cctatgagaa acaanact aagtccttcc ttcctctctc tcctgaat anttccatca gggcttaatc cttca <210> 255	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg cgg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540 600
tetatacata aactteagte attittege gaatgggaag tectytgget tettecet caactettga tgagecgett acaacane teangattte cetatgagaa acaanact aagteettee tteetettee teetgaat anttecatea gggettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens	ca gtoagctgaa gatggattgg tanaggtgtg tit gtggagaatc atccaatct tcccaagact it tccatattcc caacaaggct acgtgaagtt aa gttccttang agccaacatg acagtgggg cgg ccacctacag caaaatatn aaaatggggt	300 360 420 480 540 600
tctatacata aacttcagtc attitteg gaatgggcag tccttgggct tcttcct caactcttga tgagccgctt acaacanc tcangatttc cctatgaagaa acaanact aagtccttcc ttcctcttcc tcctgaat anttccatca gggcttaatc cttca <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255	ca gteagetgaa gatggattgg tanaggtgg ett gtgcagaate ateceaatet teceaagact ett tecatattec caacaagget acgtgaagtt eaa gtteettang agccaacatg acaggtggg egg ccacetacag caaaaatatn aaaatggggt eta tatneaacat nteteettt caagacnatt	300 360 420 480 540 600 625
tctatacata aacttcagtc attitteg gaatgggcag tcctgtggct ttcttcct cactcttga tgagccgctt acaacanc tcangatttc cctatgagaa acaanact aagtccttcc ttcctctcc tcctgaat anttccatca gggcttaatc cttca <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 gccaacagca gcggagaaac gtttctct	ca gteagetgaa gatggattgg tanaggtgtg titt gtgeagaate ateceaatet teceaagaet titt gtgeagaate ateceaatet teceaagaet titt tecatattee caacaagget acgtgaagtt taa gtteettang agccaacatg acaggtgggg gg ccacetacag caaaaatatn aaaatgggg tita tatneaacat nteteettt caagaenatt taa tatneaacat nteteettt caagaenatt	300 360 420 480 540 600 625
tetatacata aactteagte attittee gaattgggagg tecttggget tettece caactettga tgagecgett acaacane teangattte cetatgagaa acaanact aagteettee treetettee teetgaat anttecatea gggettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 gcoaacaagaa geggagaaac gttteete ttgeccagaa gactactea gettggegg	ca gleagetgaa gatggattgg tanaggtgtg ttt gtgcagaate ateceaatet teceaagaet ttt tecatattec caccaaget acgtgaagtt taa gtteettang agccacatg acaggtggg tgg ccacctacag cacaatatn aaatgggt tta tatncaacat nteteettt caagacnatt tta tetectagt tagcgcacace atggcggcc tt cetetcagtt tggcacace atggcggcc	300 360 420 480 540 600 625
tetatacata aactteagte attittee gaatgggeag teetstgget tetteet caactettga tgageegett acaacane teangattte cetatgagaa acaanact aagteettee tteetettee teetsgaat anttecatea gggettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 geaacagea geggagaaac gtttete ctgeccagea gactacteag eetggeeg	ca gteagetgaa gatggattgg tanaggtgtg titt gtgagagaat ateceaatet teceaagaet titt tecatattee caacaagget acgtgaagt tag gtteettang agccaacatg acaggtggg tag ccacetacag caaaaatatn aaaatgggg tita tatneaacat nteteettt caagaenatt tit tecteagat tagegaeaee atggeggeee tit ceteteagtt tgegeacaee atggeggeee tit ceteteagtt tgegeacaee atggeggeee titg ggaagegeaa aggcaagget cagtaetgtge	300 360 420 480 540 600 625
tetatacata aactteagte attittee gaattyggag tectytgget tettece caactettga tyagecgett acaacane teangattte cetatgagaa acaanace aagteettee tteetettee teetyaat anttecatea gygettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 gccaacagea geggagaaac gtttetet ettgeecagea gactacteag eetyggage tygecaagge gegtegggeg tyggagg	ca gteagetgaa gatggattgg tanaggtgtg titt gtgcagaatc ateccaatct teccaagact titt gtgcagaatc ateccaatct teccaagact titt tecatattec caacaagget acgtgaagtt taa gtteettang agccaacatg acaggtgggg gg ccactacag caaaaatan aaaatgggg tita tatncaacat nteteettt caagacnatt caagacnatt catt cetetcagtt tgcgcacacc atggcggccc gg ggaagcgcaa aggcaagget cagtatgtgc titg gcgggccccg tcagctagag ccgggctac tcg aggcaagtc ctgagagag ccgggctacacc ggaggcaggag cggaggaggag ccgggctacacc cgagccaagtc gtggaggag	300 360 420 480 540 600 625 60 120 180 240
tetatacata aactteagte attitteet gaattgggag tecttggget tetteet caactettga tgageegett acaacane teangattte cetatgagaa acaanact aagteette tecetetee teetgaat anttecatea gggettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 gccaacagea ggegagaaac gtttetet tetgeecagae gagegaegae tgegaege tggccaaege geteggee tgegaege tggccaaega gactacteag cetggege tggccaaega atacteag catagege tggccaaega atacteag catagege tggccaaega atacectge aatatgae tcetecaaega atacectge aatatgae	ca gleagcigaa gatggatigg tanaggigig tit gigagaatc atcccaatct teccaagact tit tecatattec caacaagget acgigaagit taa gitectiang agccaacatg acaggigigig cgcactacag caaaaatatn aaaatgggt taa tatncaacat nictectitt caagacnatt tit cetecagit tgegcacacc atggeggecc tig gggagcgcaa aggcaagget cagtatgig tig gegggecccg teagciagag ceegggetac tig gegggecccg teagciagag gectacagcc tig geggaaaagti egtgaagaag gectacagcc tig geggaaaa gittacagac aaggcacacc	300 360 420 480 540 600 625 60 120 180 240 300
tetatacata aactteagte attitteg gaatgggeag teetgtgget tetateet caactettga tgageegett acaacane teangattte cetatgagaa acaanace antecatea gggettaate ettea <210> 255 <211> 907 <212> DNA <213> Homo Sapiens <400> 255 gecaacagea geggagaac gettete tegeceagea gactacteag eetggegg tegecaage gegeggeege teggaege agggeateet cateacetge aatatgag teetcacaga aactgeggae gactatetag teetcacaga aactgegag gactgetteggaage aggectettgg aagtgagga gaggatga	ca gteagetgaa gatggattgg tanaggtgtg titt gtgcagaatc ateccaatct teccaagact titt gtgcagaatc ateccaatct teccaagact titt tecatattec caacaagget acgtgaagtt taa gtteettang agccaacatg acaggtgggg gg ccactacag caaaaatan aaaatgggg tita tatncaacat nteteettt caagacnatt caagacnatt catt cetetcagtt tgcgcacacc atggcggccc gg ggaagcgcaa aggcaagget cagtatgtgc titg gcgggccccg tcagctagag ccgggctac tcg aggcaagtc ctgagagag ccgggctacacc ggaggcaggag cggaggaggag ccgggctacacc cgagccaagtc gtggaggag	300 360 420 480 540 600 625 60 120 180 240

```
ttctccagga tatgtacaaa accaagaaaa agaagactcg agttattttg cgaatgttac
                                                                      540
ccatctcagg cacatgcaag gcttttttag aagatatgaa aaaatatgca gaaacatttt
                                                                      600
tggaaccctg gtttaaagct ccaaacaaag ggacatttca gattgtgtac aaaatctcga
                                                                      660
nataacagtc atgtnaatag agaagaagtt atcaaqagaa tttqcanqqa atagtgtgca
                                                                      720
acctcaattc agnaaataaa gtgggtntca acaatccaca agtacacaat ngtaatanaa
                                                                      780
atcatcaaan ctgtcngttc cctganngtt tgttaaagga ttacaaggtt ggtttannaa
                                                                      840
aattcaatcn ccaagaaggt tggtnaanaa ncccctaang ggntccttca naggcnttaa
                                                                      900
ctcaaaq
                                                                      907
      <210> 256
      <211> 794
      <212> DNA
      <213> Homo Sapiens
      <400> 256
aataacgcaa aatgacttat ggagacaacc actgatgggg caccaggagt gtagatacca
                                                                       60
gacctctggt tatcagatat gatgtcacaa aanagagata ttggcctttg ttctggcagg
                                                                      120
ctcctagcaa tagaaaaagt tttctttgaa tttcatcatt tacaaatctt acaaatgcta
                                                                      180
cagcatgaca aatattagtg aaacctgttg actcatcatc ctggatagag aagctgctac
                                                                      240
ttttcagtta atgacacaaa acctttttg catcatatga catatcatca gtaaatcaac
                                                                      300
ttattgagaa taaagtotot toaactttgt actgoatott geeccagcat tttaatgtta
                                                                      360
ttagattete accaaccatg catattttee ttteetgaga taagttetge taetaaataa
                                                                      420
tttgcttctt aaaccttttg actaaaggtg atttctgaac aaaagcctta ctgtttttga
                                                                      480
tagtccaaaa gccatttgaa aataatgaat atcctttctt gtcaagtggc tgtgatttat
                                                                      540
tgttacaatt gctaagtttt gtaagttgca tgtcacagac aatgcacaat gggacaagan
                                                                      600
aaccttggac ctgagtccac ataaataccc cttgagaagt tancttttcc ttaattaaga
                                                                      660
caagaatttc ctttggtgtc cccttggttg cactaagtat acttgaaagt ntnctccaqn
                                                                      720
angactggaa gttcttcaat caaccaanct ttttcaagaa aatgtccngt agtttcaang
                                                                      780
gcctaaaaat gggt
                                                                      794
      <210> 257
      <211> 885
      <212> DNA
      <213> Homo Sapiens
      <400> 257
qacqccaaca qcagcggaga aacgtttctc tttcctctca gtttgcgcac accatggcgg
                                                                       60
cccetgeeca geagactaet eageetggeg gegggaageg caaaggcaag geteagtatg
                                                                      120
tgetggccaa gegegetegg egetgegaeg etggegggee eegteageta gageeeggge
                                                                      180
tacagggcat cctcatcacc tgcaatatga acgagcgcaa gtgcgtggag gaggcctaca
                                                                      240
geeteeteaa egaataegge gaegaeatgt atgggeeaga aaagtttaca gaeaaggate
                                                                      300
agcaqccctc tggaagtgag ggagaggatg atgatgcgga ggctgccttg aagaaagaag
                                                                      360
ttggtgacat taaggcatct acagagatga ggttaagaag attccagtca gtggaaagtg
                                                                      420
gagcaaataa cgttgtcttc atcaggacac ttgggataga gcctgagaaa ttggtgcatc
                                                                      480
atatteteca ggatatgtae aaaaccaaga aaaagaagae tegagttatt ttgegaatgt
                                                                      540
tacccatctc aggcacatgc aaggettttt tagaagatat gaaaaaatat gcagaaacat
                                                                      600
ttttqqaacc ctgggtttaa aqctccaaac aaaggqacat ttcagattgt gtacaaatct
                                                                      660
cgaaataaca gtcatgtgaa tngagaaaga agttatcaga gaaattggca aggaatagtt
                                                                      720
```

780

840

885

gtgcaccctc aattcagaaa attaaaggtg ggntctcaac caatccacag ttcacagntg

gtagttagaa atcaatcaaa acctgtcngt ttgcccgaan ttgnttgtta aaagaattca

angttggttt tanaaanaat naaatcccca aagaaggtgg gtgaa

<210> 258

<211> 798

<212> DNA

780

831

<213> Homo Sapiens

<400> 258 aacatttttg cataaatggg totttgatac aggtaaccag ttttgtaaca ttattcagaa 60 cttcactgta tcttcaagtt tttgatatca gnagcactgt ggagaaagca gtgtgctata 120 atgtcaacat caggatttct ttttttttt ttaataacgc aaaatgactt atggagacaa 180 ccactgatgg ggcaccagga gtgtagatac cagacctctg gttatcagat atgatgtcac 240 aacattatat attggccttt gttctggcag gctcctagca atagaaaaag ttttctttga 300 atttcatcat ttacaaatct tacaaatgct acagcatgac aaatattagt gaaacctgtt 360 gactcatcat cotggataga gaagotgota ottttcagtt aatgacacaa aacottttt 420 gcatcatatg acatatcatc aagtaaatca acttattgag aataaagtct cttcaacttt 480 gtactgcatc ttgccccagc attttaatgt tattaagatt ctcaccaacc atgcatattt 540 tcctttcctg agataagttc tgctactaaa taatttgctt cttaaacctt ttgactaaag 600 gtgatttctg aacaaaagcc ttactgtttt tgataagtcc caaaaagcca tttgaaaaat 660 aatgaatatc ctttcntgtc aagtggctgt gaatttaatg ttacaattgc caagttttgt 720 aagttgcatn gtcacangac aatgcacaat ggggacaagg agaaccttgg gcctgagtcc 780 acaataanta ccccttga 798 <210> 259 <211> 831 <212> DNA <213> Homo Sapiens <400> 259 geeggeggta gaegaggaeg ccaacagcag eggagaaacg tttetettte eteteagttt 60 gegeacacea tggeggeece tgeccageag actaeteage etggeggegg gaagegeaaa 120 ggcaaggete agtatgtget ggccaagege geteggeget gegacgetgg egggeeeegt 180 cagctagage cegggetaca gggeatecte ateacetgea atatgaacga gegeaagtge 240 gtggaggagg cctacagcct cctcaacgaa tacggcgacg acatgtatgg gccagaaaag 300 tttacagaca aggatcagca gccctctgga agtgagggag aggatgatga tgcggaggct 360 gccttgaaga aagaagttgg tgacattaag gcatctacag agatgaggtt aagaagattc 420 cagtcagtgg aaagtggagc aaataacgtt gtcttcatca ggacacttgg gatanagcct 480 gagaaattgg tgcatcatat tctccaggat atgtacaaaa ccaagaaaaa gaagactcga 540 gttattttgc gaatgttacc catctcaggc acatgcaang cttttttaga agatatgaaa 600 aaatatgcan aaacattttt ggaancctgg tttaaagctc caaacaaagg gacatttcag 660 attgtgttca aatctcgaaa ataacagtca tgttgaatag aagaagaagt tatcagagaa

<21.0> 260

<211> 772

<212> DNA

<213> Homo Sapiens

<400> 260

aataacgcaa aatgacttat ggagacaacc actgatgggg caccaggagt gtagatacca 60 gacctctggt tatcagatat gatgtcacaa cattatatat tggcctttgt tctggcaggc 120 tectageaat agaaaaagtt ttetttgaat tteateattt acaaatetta caaatgetae 180 agcatgacaa atattagtga aacctgttga ctcatcatcc tggatagaga agctgctact 240 tttcagttaa tgacacaaaa ccttttttgc atcatatgac atatcatcag taaatcaact 300 tattgagaat aaagtotott caactttgta otgoatottg occoagoatt ttaatgttat 360 tagattetea ecaaceatge atatttteet tteetgagat aagttetget aetaaataat 420 ttgcttctta aaccttttga ctaaaggtga tttctgaaca aaagccttac tgtttttgat 480 agtccaaaag ccatttgaaa ataatgaata tcctttcttg tcaagtggcn gtgatttatt 540 gttacaattg ctagttttgt nagttgcatg tcacagacaa tgcacaatgg gacangagag 600

nttggcaagg aataatgntg caacctcaat tcagaaaata aaagtggatt tcaccaattc

cacagincac aaniggtagi agaaatcatc aaaagcintc igitigeeeg a

tettigigacig agreeacata ataccentga gaagtannet tettigigte cettigitigea caagtniact gaagtniene ataancaace tittiagaaat gicegtatte etaaggeeca	aagaaggact	ggangtente	660 720 772
<210> 261 <211> 753 <212> DNA <213> Homo Sapiens			
<400> 261			
agacgaggac gccaacagca gcggagaaac gtttctcttt	cctctcagtt	tgcgcacacc	60
atggcggccc ctgcccagca gactactcag cctggcggcg	ggaagcgcaa	aggcaaggct	120
cagtatgtgc tggccaagcg cgctcggcgc tgcgacgctg	gegggeeeeg	tcagctagag	180
cccgggetac agggeatect cateacetge aatatgaaeg geetaeagee teeteaaega ataeggegae gacatgtatg	agcgcaagtg	cgtggaggag	240
aaggatcagc agccctctgg aagtgaggga gaggatgatg	atacagagaa	gtttacagac	300
aaagaagttg gtgacattaa ggcatctaca gagatgaggt	taagaagatt	cceatcasts	360 420
gaaagtggag caaataacgt tgtcttcatc aggacacttg	ggatagagcc	tgagaaattg	480
gtgcatcata ttctccagga tatgtacaaa accaagaaaa	agaagactcg	agttattttg	540
cgaatgttac ccatctcagg cacatgcaag gcttttttag	aaagatatga	anaaatatoc	600
anaaaacatt tttggaaccc tgggtttaaa gctccaaaca	aagggacatt	tcagaattgt	660
ggtacaaatc tcgaaatanc agtcatgtta antagagaan	naagttttc	agaagaattt	720
ggcaaggaat nagtnntgca acceteaatt tea			753
<210> 262 <211> 659 <212> DNA <213> Homo Sapiens			
<400> 262			
aataacgcaa aatgacttat ggagacaacc actgatgggg	caccaggagt	qtaqatacca	60
gacctctggt tatcagatat gatgtcacaa cattatatat	tggcctttgt	tetggcagge	120
tectageaat agaaaaagtt ttetttgaat tteateattt	acaaatctta	caaatgctac	180
agcatgacaa atattagtga aacctgttga ctcatcatcc	tggatagaga	agctgctact	240
tttcagttaa tgacacaaaa ccttttttgc atcatatgac	atatcatcag	taaatcaact	300
tattgagaat aaagtetett caactttgta etgeatettg tagattetea ceangeeatg catattttee ttteetgaga	ccccagcatt	ttaatgttat	360
tttgcttctt aaaccttttg actaaaggtg atttctgaac	aaaaaaaatta	cactaaagaa	420
nnagtccana agccatttga aaaataatga atatcctttc	cttatcaaat	ggcpgtgatt	480 540
tantgttaca atttgcnagg ttttgtaagt tgcatggtca	cagnanaatg	Cacantnoo	600
acanngagan entgggneng aagteeacat tatanceett	tgagnaangt	agettteee	659
<210> 263 <211> 673 <212> DNA <213> Homo Sapiens			
<400> 263			
gagattttga tcacggtaac cgatcagaat gacaacaagc	ccgaattcac	ccaggaggtc	60
tttaaggggt ctgtcatgga aggtgctctt ccaggaacct	ctgtgatgga	ggtcacagec	120
acagacgcgg acgatgatgt gaacacctac aatgccgcca	tegettacae	catcctcage	180
caagatcctg agctccctga caaaaatatg ttcaccatta	acaggaacac	aggagtcatc	240
agtgtggtca ccactgggct ggaccgagag agtttcccta	cgtataccct	ggtggttcaa	300
getgetgace tteaaggtga ggggttaage acaacagcaa	cagctgtgat	cacagtcact	360
gacaccaacg ataatectee gatettcaat cecaccacgt	acaagggtca	ggtgcctgaa	420

```
aacgaggcta acgtcgtaat caccacactg aaagtgactg atgctgatgc ccccaatacc
                                                                 480
ccagcgttgg gaggctgtat acaccatatt gaatgatgat ggtgggacaa tttqtcqtca
                                                                 540
ccacaaatcc agtgaacaac gatggcattt tgaaaaacag caaagttgaa gtcaagtgat
                                                                600
tttgctggtt cngaatcaat tgttgcctcn gttgggagaa aggtntccaa cacatacccc
                                                                 660
gggattngtt att
                                                                 673
     <210> 264
     <211> 661
     <212> DNA
     <213> Homo Sapiens
     <400> 264
acctccaact gcatctccta ctctgaaatn cctcttgagc agccaagggt ggccagttct
                                                                120
gctcctcatt ttcctgaaga anaatctcag cctgaaagaa tatagagcta ggtgacatat
                                                                180
gggtggccaa ccgcttctcc tcaagttcca anagagtggg caattagtga aattccatca
                                                                240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg
                                                                300
aaaaatgtag attaatgaga tetgtaactg tettetetta actgtacacc cetcaggetg
                                                                360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca
                                                                420
ccataaaacc accccgaggg tcagccatgc tgccagcact caagaagcag cagggccacc
                                                                480
tgctggaaaa ctgggcacgg ctctgggtgc ctggccctgc ctgcctcctc cacqtccttg
                                                                540
gagccaggtc tacggcaggg aacatgatct tettetecag ettetgtgga aggaacanga
                                                                600
aatttttcat gatgtcntcc agetetteta nggecaactg ggcatggane ttggecaegt
                                                                660
                                                                661
     <210> 265
     <211> 659
     <212> DNA
     <213> Homo Sapiens
     <400> 265
60
acctecaact gcatetecta etetgaaatg cetettgage agccaagggt ggecaqttet
                                                                120
geteeteatt tteetgaana anaateteag eetgaaagaa tatanageta ggtgacatat
                                                                180
gggtggccaa ccgcttctcc tcaagttcca ananagtggg caattagtga aattccatca
                                                                240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg
                                                                300
aaaaatgtag attaatgaga totgtaactg tottototta actgtacacc cotcaggotg
                                                                360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca
                                                                420
ccataaaacc accccgaggg tcagccatgc tgccagcact caaaaagcag cagggccacc
                                                                480
tgctggaana actgggcacg gctctgggtg cctggccctg cctgcctcct ccacgtcctt
                                                                540
gganccaggt ctacggnagg accatgatet tettetecan ettetgtgga aggaacanga
                                                                600
antitttcat gatgtentee actettetag ggecaactgg geatggactt ggecacgte
                                                                659
     <210> 266
     <211> 620
     <212> DNA
     <213> Homo Sapiens
     <400> 266
60
acctccaact gcatctccta ttntnaaatg cctcttgagc agccaagggt ggccagttct
                                                                120
gctcctcatt ttcctgaana anaatctcag cctgaaagaa tatagagcta ggtgacatat
                                                                180
gggtggccaa ccgcttctcc tcaagttcca ananagtggg caattagtga aattccatca
                                                                240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg
                                                                300
```

aaaaatgtag attaatgaga totgtaactg tottototta actgtacacc cotcaggotg

<pre> <210> 267</pre>	aacgcgggag tgctgaacac atgccctcgg aagggaccc ccataaaacc accccgaggg tcagccatgc tgccagcac tgctggaaga cctgggcacg gctctgggtg cctggccct ggagccaggt ctacngcang aacatgatct tcttctccs ntttttcatg atgtcatcca	ct caagaagcag cagggccacc 480 cg cctqcctcct ccacgtcctt 540
geactactac aggregage teaastgete casteattee teaaggage astgageca attegaageg taaccacaga acagetecas aggregated tittecact 180 agastagaaa tetegaageg taaccacaga gaggetette caggatagaca gagagaagaa aaagecettg agatgeagaa gaggatact gagaagaact gagaagaact tgeegaaact tgeegaaact tgeegaaact tgeegaaact tgeegaaact tgeegaaact tgeegaaact tatgeegaac decty agagagatge attageagaa gagacacaga atgaaagteg gggagatect tatgeegaac tatgeegage ggeegagaactgeegagaac ggteegagaactgeegagaac ggteegagaactgeegagagaactgeegagagaactgeegagagaactgeegagagagaacagagagagaacagagaacagagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagaacagagagaacagagagaacagagagaacagagagagaacagagagagagaacagagagagagaacag	<211> 745 <212> DNA	
grantactact agactacasa atctagaagg taaccacaga acagetecaa gaggetettt tgetacatett tgetacatett tgecacteca attecacaca gaggetegete etetteccact 180 gagatagagca gagagaagca aaagecettg agatgcaaga gaageteete agagatagaca gagagaagca gagacettg taatetate tgecaatteag gaggttgeec 3000 tgetgtoaga getetateet gagaaaatet tgeeggaatt gttggecaa attagacagca getacacaca gagacacaaga attgaaagteg gggagatet tatgegaate 420 gagagaatga tagaagacat gggtecaaga ettgagecaa acatteaggagat tagagagacat gggtecaaga tectgageca agagaceagaa gettggecaa acttgaggag cettgaggaat gagateetga tettggge teegggeca attggecaga ggetgggagte gagagaget tettgggge teeggggeca attggecaga gettgggea acttggggag caanacaat inningaaag teeggggteg attgggeaa acttggggg tagaggtggg getgggetegggetegggggggggg	<400> 267	
grantactact agactacasa atctagaagg taaccacaga acagetecaa gaggetettt tgetacatett tgetacatett tgecacteca attecacaca gaggetegete etetteccact 180 gagatagagca gagagaagca aaagecettg agatgcaaga gaageteete agagatagaca gagagaagca gagacettg taatetate tgecaatteag gaggttgeec 3000 tgetgtoaga getetateet gagaaaatet tgeeggaatt gttggecaa attagacagca getacacaca gagacacaaga attgaaagteg gggagatet tatgegaate 420 gagagaatga tagaagacat gggtecaaga ettgagecaa acatteaggagat tagagagacat gggtecaaga tectgageca agagaceagaa gettggecaa acttgaggag cettgaggaat gagateetga tettggge teegggeca attggecaga ggetgggagte gagagaget tettgggge teeggggeca attggecaga gettgggea acttggggag caanacaat inningaaag teeggggteg attgggeaa acttggggg tagaggtggg getgggetegggetegggggggggg	cccccagac aggcctgcag tcaaatgctc caatcattc	c tcaaggagtc aatqaqccca 60
ggatagaaga gaagaagaa aaagcecttg agattcaatea gaggttgeec 300 tggaaaact tggaaaact gaggaaatett gaggaaatet 300 geggttgeec 300 tgctgtcaga gfctctatect gagaaaatet tgcggact gttggctcaa tatggagac 420 gagagaagaag gagatectgaa gttggccagaa gcttgagcaa cttagggaa 660 attgctgtgg gactgagtte tatgaggtaa cattgggaa cttggggag 540 ctgtgccaga ggcttgagtet tatgaggtaa cattgaggaa cttggggag 660 dttgtgtgtg gccagaaaaaat ttntnaaag ttcaagtteg cannagctgg ccaanacaat 660 gtgggtttg gcctgctmg tttcaagggaa acttagggaa ctttgaggaa cctttggaga 720 gtgggttgtg gcctgcmg tttcaagggaa actaattcat aattgaggtaa cattgaggtaa 720 gtgggttgtgt 268 <211> 676 <212 > DNA <213	gcactactac aagtcagaaa tctggaagcg taaccacag	ga acagctccaa gaggttcttt 120
tggaaaaact ggaacactga gacacttttg tatatctatc tggaatteag ggggttgccc lggctgcaga ggtetatect gagaaaact tgegggact gtgggaagtct tatgcgaac ggcaagaag ggacacacaa gagacacaaa atgaaagtcg gggaagtcc tatgcgaac gtcaagagaca ggaccacaca gagaccaaaa atgaaagtcg gggaagtcc tatgcgaac gtcaagagagaggaagtga gagatcctga tatggagacat tatgagagacat ggctgaaca ggctgcaaga gcttggaaca cttggggaa cttggggaa cttggggaac tctggggaa cttgggggagggtgggggggggg	tgtcagctta tgaccctcaa attccaacac gggctgctg	se cetgegtact ettteccaet 180
tgctgtcaga cgtctatect gagaaatct tgccggactt gttggctcaa tatgacagca 360 gcaaagacaa gacacacaca gagaccaaga atgaaqtcg gtgaagtcet tatgggaat 480 gtctcaaag taccgagaac ctttgatca taccttcctg 480 aggggagtga gagatcctg tggtgctca agggcagca gcttgggga 540 cttgtgccaga ggctggggtg taggggatt tctgctgggc aggggggggact caaaaacat tntntgaaag ttcaagttcg cannagctg ccaanacaat 660 gtggggttgt gcctgcnngc tttcggggga actcaacca agaaaagct tantgtaagg 720 gtgggnttaan ccnccggtcc tcaa <210	ggatagagca gagagaagca aaagcccttg agatgcaag	ga gaagettete aagatattet 240
gcaaagacaa gcacacaca gagaccaaga atgaaagtog gggaagtcct tatgogaatc 4800 aggggact taggggacat gtgatgcaaa ggttcaaag tacctacaaga cettgatcaa taccttactg gtggatgtag agaatcctga tggtgctaa agggcaagaa ggttgggcaa agcttgctgg caaaaaacat thintgaaag tacaaccaa agaaaaagct tantgtaagg 720 attgcggttgggtcg cetaaaaacat thintgaaag tacaaccaa agaaaaagct tantgtaagg 720 gtggnttaa concoggtc ttcaa 745 c211> 676 c211> DNA c213> Homo Sapiens cotctggacaa cettgaaaaa aaaaagt tacattatt caattttgaa tacattattat tacattattgaa actatttcct tacactccaag ggctggcaaa cogtaccaca ggaaaaaagt tantgtaagg 720 gtgctcatatt tacattatt coattttgaa tattttgata actatttcct tacactccaaga taactttatt caattttgaa tattttgata actatttcct tacactccaagt gactccaagt cactccaagt cactccaact gcatccaa ctctgaaatg cctctgaaaga tataaggata gggtaaatat 180 gggtggcaa cogttctcc tacagttcca ananagtgg caattaaggaa ggtataattag attaatagaga tataatgaga tattaatgaga tataatgaga tataatgaga tataatgaga tataatgaga accegagga gaccactctct tacagtca gagacacga ggacagtg caaacgaggaa ggcaagtcat caaacgcgggaag tacagaacaa aggacaatga caggaccatg caggacaag ggagacaag caggagaagaaga ggagaagaaga ggagaagaaga ggagaaga	tgctgtcaga cgtctatcct gagaaaatct tgccggact	t granten ggggttgece 300
gtcaggacat taggagacat ggtctcaaag taccgagac ctttgatcca taccttcctg 480 agggagatga gagatcetctga tggtgtctcaa aggacagaca gsttgggaa ccttggggaa cttgtgcaga ggctggactt tctgctggg tatggacatca tattgcagagacatcagagagagagagagagagagagaga	gcaaagacaa gcacacaca gaqaccaaqa atqaaagto	g gggaagteet tatggeagea 360
agggagatga ggatgoztt Etdgetggot caggaga gcttggggaa cttggggaa (ctgtggcaa ggctggagat gaggagagat ggctggagat tetgetggg teagtggtgca gaggagtaa ggcttggctg caaaaacat thintgaaag ttcaagttg cannagctgg caanacaat 660 gtggggtgtg gcctgcmgc tttcagggga actcaacca agaaaagct tantgtaagg 720 gtggnttaan cenceggtec ttcaa 745 <pre></pre>	gtcagggcat taggagacat ggtctcaaag taccgagaa	IC Ctttgatcca taccttcctg 420
ctgtgcaga ggctggactt tctgctgggc tccgtggtcc atgaggtaa agcttgcctg 660 attgctgtg ccaaaaacaat thitigaaag tcaacacca agaaaaagct tantgtaagg 720 gtggnttaan ccnccggtcc ttcaa 725	aggggagtga gagateetga tggtgeteae agggeeage	a gettgggeaa cettggggag 540
gtggnttaan concogste ticaa 720 gtggnttaan concogste ticaa 745 (210> 268 (211> 676 (212> DNA (213> Homo Sapiens (400> 268 ccatccaaga taactitati ccattitgca tiatitgata actatiteet teeeeteee 60 acciccaact geateceta cictgaaatg ectetigage agceaagggt ggceagtiet 120 gtcatgttaa aatatattit cacattitee ananagtgg cattaggaa atteageata 300 aaaaatgtag attaatgaga tedgtaacta tetteteet teeteeea 240 gtcatgttaa aatatattit accaggaga cactectiet ticatageta gaggacagtg 300 aaaaatgtag attaatgaga tedgtaactg tetteteeta actgtacace cetcaggetg 300 aaaaatgtag attaatgaga tetgtaactg tettetetta actgtacace cetcaggetg 360 aaaagegggag tgctgaacac atgceetegg aaggacecte gaagacecaa gtgacetga 420 ccataaaaac accecgagg teagecatge tecageact cagagaga actgggeace 480 tgctggaana cetgggacag getetgggtg cetggeetg ectgeeteet cacagteet 540 ggagaccagg tetagacga cancette taaggecaac tgggcaaca actggcacag gaagatega 600 gaagttitte atgatgtaat ccanctette taaggecaac tgggcatgga acttggeca 660 gtcateggge tecaaa 690 (210> 269 (211> 737 (212> DNA (213> Homo Sapiens (400> 269 aacaaagaca aagaaggaa ggtttetaa agcatcactg gccaaggage tgacacace 60 accagaagaca aagaaggaa aggtttetaa agcatcactg gccaaggage tgacacace 60 cctgttggtg tetttatat tgaaagagaa acaggatgge tgacacace 60 cctgttggtg tetttatat tgaaagagaa acaggatgge tgaaacace 60 cctgttggtg tetttatat tgaaagagaa acaggatgge tgaaacace 60 cactgttggtg tetttatat tgaaagagaa acaggatgge tgaaacace 60 cactgttggtg tetttatat tgaaagagaa acaggatgge tgaaacace 60 cactgttggtg tetttatat tgaaagagaa acaggatgge tgaaacace 60 cactgttagtg tetttatat tgaaagagaa acaggatgge tgaacace 60 cactgttagtg tetttatat tgaaagagaa acaggatgge tgaacace 60 cactgatggg tetttatat tgaaagagaa acaggatgge tgaacace 60 cactgatggg tetttatat tgaaagagaa acaggatgge tgaacace 60 cactgatgga tettaaca acaggatgge tgaacace 60 cactgatgatga tettaacaaca acaggatgge tgaacace 60 cactgatgatga atttaacaaca cacacacaacaacaacaacaacaacaacaaca	ctgtgccaga ggctggactt tctgctgggc tccgtggtc	c atgaggtaac agettgeetg 600
C210 > 268	attgctgtgg ccaaaaacat tntntgaaag ttcaagttc	g cannagetgg ccaanacaat 660
<pre><210> 268 <211> 676 <212> DNA </pre> <pre>C212> DNA </pre> <pre>C213> Homo Sapiens</pre> <pre> <400> 268 ccatccaaga taactttatt ccattttgca ttatttgata actatttcct teccetecec geatccaact gcatctccta ctctgaaatg cctcttgage agcaagggt ggccagttct 120 gctcctcatt ttcctgaana anaatctcag ctgaaagaa tatagagata ggtgacatta 180 gggtggcaa ccgcttctcc tocagttcca ananagtggg caattagtga aattccatca 240 gtcatgttaa aattaattt caccaggtag cactcttct taatgcta gaggacagtg 300 aaaaatgtag attaatgaga tctgtaactg tcttcttatt actgatacac cctcaggctg 360 aacaggggag tgctgaacac atgccctcgg aagggacact gaaggaccca gggacacg tcggaaaca caccgaggg tcagcatgc tgccagcact cagaagaca agggacact cagggagacagg tctgggaana cttgggcaac gcttgggtg cctggcctg cctgcctcc tcacgtcctt 540 ggagacaag ctggcaag gacatgat cttcttctca acttcttgc acgttctgtg gaaggacag ggtttttc atgatgtaat ccanctctt taaggccaac tgggcaaca tgggagacag ggagagttttt atgatgtcat canctcttc taaggccaac tgggcatgga acttggccac 660 gtcatcgggc tccaaa</pre> <pre></pre>	granttaan conceanted these	
<pre><211> 676 <212> DNA <213> Homo Sapiens </pre> <400> 268 ccatccaaga taactttatt ccattttgca ttatttgata actatttcct tecctcccc gctcactcact gcatctcat ctctgaaatg cctcttgage accaagggt ggccagttct 120 gctcctcatt ttcctgaana anaatctcag cctgaaagaa tatagagcta ggtgacatat 180 gggtggccaa cogcttctcc tcaagttcca ananagtggg caattagtga aattccatca 240 gcatgttaa aatatactt caccagggag acactctct ttcatagtca gagacagg 300 aaaaatgtag attaatgaga tctgtaaactg tcttctctta actgtacaca cccaggctg 360 aaaaatgtga gctaaacac atgccctogg aagggcacc gaagacccaa gtgacctgca 420 ccataaaacc acccgaggg tcagccatgc tgccagcact caagaagag cagggcacc 480 tgctggaana cctgggcaag gctctgggtg cctggcctg cctgctcct ccacgtcctt gggagccagg tctagcagg gcacatgat ctttcttcc actttatgc agagaaccag ggagaccagg tctaggaac ctggccctg cctgctcct ccacgtcctt gggagccaagg tctagcaga ggactatgat ctttctcc actttcttc acgttcttgtg gaagaacag gaagtttttc atgatgtcat ccanctcttc taaggccaac tgggcatga acttggcca 660 gtcatogggc tccaaa <pre></pre>	3-33	745
<pre><212> DNA</pre>	<210> 268	
<pre><213> Homo Sapiens <400> 268 ccatccaaga taactttatt ccattttgca ttatttgata actatttcct teccetcec</pre>		
<pre><400> 268 Ccatccaaga taactttatt ccattttgca ttatttgata actatttcct teccetcecc acctecact geateteets ctctgaaga teatettat cattttgata actatttcct teccetcecc acctecact geateteets ctctgaaga ctcttgaaga agreagatts 120 gctcctcatt ttcctgaana anatctcag cctgtaagaaga taagagact ggccagttct 180 gggtggcaa cogttctc teaagttcca ananagtggg caattagtga aattccatca 240 gcatgggaga tataatgaga tctgaacag tttctctta actgtaagca gaggacagtg 360 aaaaatgtag attaatgaga tctgtaactg tcttctcta actgtaacag gaggacagtg 360 aaaagtggaga tgctgaacaa atgccctcgg aagggaccct gaagaacaga gaggacact ccataagaca accgaggag tcacgcatgc tgccagcact caagaagaag agggacact 480 tgctggaana cctgggaag gaccatgc tgccagcact caagaagaag agggacacc 480 tgctggaana cctgggcag gacactggt ctdggcctg cctgcctcct ccacgtcctt 540 ggagaccagg tctacggag gacatgat tcttctcc acttctgg gaaggaacag 660 gaagttttte atgatgtcat ccanctctt taaggccac tgggcatgg acttggcac 666 gtcatcggge tccaaa</pre>		
ccatcoaaga taactttatt ccattitgea tiatitgaa actattcct tecectece (60 acctectact gestectes ctetigage agreeagts) gecaagtgt gecaagtgt 120 getectectat ticetgaana anaateteag cctgiaaagaa taaagagta ggtaactat 180 gggtggcaa cogtitete claagitica ananagtggg caattagtga aattecatea 240 getectetata aatatactt caccaggaga cactottet ticaatgia gaggacagtg 300 aaaaatgitaa attaatgaga tictgaacat tetiteteta actgiacace cetcaggigg 360 aacggggggag tgetgaacaa atgecetegg agggacace caagaagaaga ceccaaggigga cattigggaana citigggaaca atgecetegg agggacace caagaagaaga gagggacace dagggagacag ticatigggaana citigggaaga ggitititica aaggecaac tigggaagaaga acttigggaagaaga caagagtititic atgaigtataa cancette taaggecaac tigggaagaaga acttiggcac gaagattitic atgaigtataa cancette taaggecaac tigggaatga acttiggeca 660 gitaateggge ticaaaa cancette taaggecaac tigggaatga acttiggecac 660 gitaateggge ticaaaa cancette taaggecaac tigggaatga acttiggecac 660 gitaateggga ticaaaaca acgaagaagaa ggtitititaa agcatcact ggcaaggag tigacacacc 660 aacaaagaagaa aagaaggaa ggtitititaa agcatcact ggcaaggag tigacacacc 600 aacaaagaagaa aagaaggaa aggtitititaa agcatcact ggcaaggag tigacacacc 600 aacaaaagaaca aagaaggaa aggtitititaa agcatcact ggcaaggagc tigacacacc 600 aacaaaagaaca aagaaggaa aggtitititaa agcatcact ggcaaggagc tigacacacc 600 aacaaaaaaca aagaaggaa aggtitititaa agcatcact ggcaagaggc tigacacacc 600 aacaaaaaaca aagaaggaa aggtitititaa agcatcact ggcaaagaact tictacacagga tigacacacc 600 aacaaaaaaca aagaaggaa aggtitititaa agcatcact ggcaaagaact tigacacacc 600 aacaaaaaaca aagaaggaa aggtitititaa agcatcact ggcaaagaact aagaactcaca aagaagaaca aagaag	<213> HOMO Sapiens	
getectoaact geateteeta etetsaaatg eetettsgae ageeaagggt gecaagteet 120 getectoaact teteetgaaana anaatettag eetgaaagaa ataagageta getgacatat 180 gegtegecaa eegetteete teaagtteea ananagtegg eattagtaa aatacette eaagteea aeagageta aeateetteet teaagteta gaggacagtg 3000 aaaaaatgtag attaatacatte caccagetag aeateeteteet teaagtetaa gaggacagtg 360 aacgegggag tegtaaaca atgeeetegg aaggaceet gaagaceea gtgacetgaa 420 ccataaaaaca acceeggagg teageeatge tegeageact caagaaggag aagggeeaee 480 tgetggaana eetgggaag getetgggg eetggeeetg eetgeeteet eeagteet 540 gggageeagg tecaaggag ggaacatgat ettettete aggeedeet gegeeteete eeagteet 540 ggaagtettte atgatgteat eenetete taaggeeaae teggeeatga aettggeeae 660 gteateggge tecaaa <210> 269 <211> 737 <212> DNA <213> Homo Sapiens 400 269 aacaaagaca aagaaggaa ggtttetaa aggateaetg gecaaggage tgacacace 60 eetegttggtg tettaatta tgaaagagaa acaggatgga tgacacace 60 eetegttggtg tettatatat tgaaagagaa acaggatgga tgacacace 60 eetegttggtg tettatatat tgaaagagaa acaggatgga tgacacace 60 eetegttggtgg tettaaacaa gaagaaggaa acaggaagga tgacacace 60 eetegttggtgg tettataata tgaaagagaa acaggaatgaa tettaatea gaagaeteet 61 aaggateete 61 aaggateete 62 aaggagatga acaggatga acaggatga tgacacace 61 aaggatgatgaa acaggatgaa acaggatgaa tgaaacace 62 aaggagatga acaggaatga aaggatgaa acaggatgaa tgaaacace 63 aagagateet 64 aaggatgaa acaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaggateete 64 aaaaaagaca aaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca acaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca aaggaatga agttaaaacaatgaagaa tettaataca gaagateete 64 aaaaaaagaca acaggaatga acagaagaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca acaggaatgaa acaggaatgaa acaggaatgaa tettaaacaagaa aagaagaaa acaggaatgaa acagaagaa acaggaatgaa acaggaatgaa acaggaatgaa acaggaatgaa acagaagaa acaggaatg		
getectoaact geateteeta etetsaaatg eetettsgae ageeaagggt gecaagteet 120 getectoaact teteetgaaana anaatettag eetgaaagaa ataagageta getgacatat 180 gegtegecaa eegetteete teaagtteea ananagtegg eattagtaa aatacette eaagteea aeagageta aeateetteet teaagteta gaggacagtg 3000 aaaaaatgtag attaatacatte caccagetag aeateeteteet teaagtetaa gaggacagtg 360 aacgegggag tegtaaaca atgeeetegg aaggaceet gaagaceea gtgacetgaa 420 ccataaaaaca acceeggagg teageeatge tegeageact caagaaggag aagggeeaee 480 tgetggaana eetgggaag getetgggg eetggeeetg eetgeeteet eeagteet 540 gggageeagg tecaaggag ggaacatgat ettettete aggeedeet gegeeteete eeagteet 540 ggaagtettte atgatgteat eenetete taaggeeaae teggeeatga aettggeeae 660 gteateggge tecaaa <210> 269 <211> 737 <212> DNA <213> Homo Sapiens 400 269 aacaaagaca aagaaggaa ggtttetaa aggateaetg gecaaggage tgacacace 60 eetegttggtg tettaatta tgaaagagaa acaggatgga tgacacace 60 eetegttggtg tettatatat tgaaagagaa acaggatgga tgacacace 60 eetegttggtg tettatatat tgaaagagaa acaggatgga tgacacace 60 eetegttggtgg tettaaacaa gaagaaggaa acaggaagga tgacacace 60 eetegttggtgg tettataata tgaaagagaa acaggaatgaa tettaatea gaagaeteet 61 aaggateete 61 aaggateete 62 aaggagatga acaggatga acaggatga tgacacace 61 aaggatgatgaa acaggatgaa acaggatgaa tgaaacace 62 aaggagatga acaggaatga aaggatgaa acaggatgaa tgaaacace 63 aagagateet 64 aaggatgaa acaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaggateete 64 aaaaaagaca aaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca acaggaatgaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca aaggaatga agttaaaacaatgaagaa tettaataca gaagateete 64 aaaaaaagaca acaggaatga acagaagaa acaggaatgaa tettaataca gaagateete 64 aaaaaaagaca acaggaatgaa acaggaatgaa acaggaatgaa tettaaacaagaa aagaagaaa acaggaatgaa acagaagaa acaggaatgaa acaggaatgaa acaggaatgaa acaggaatgaa acagaagaa acaggaatg	ccatccaaga taactttatt ccattttgca ttatttgat	a actatttect tecesteese 60
gggtggcaa cogcttctc teagtctca anaatctcag cctgaaagaa tatagagcta ggtgacatat 240 ggggtggcaa cogcttctc to caagttca aattacattca 240 gtcatgttaa aattacattca cacaggtag acatcottot ttcaatgca gaggacaggt 300 aaaaatgtag attaatgaga attatacgta aggacagtg 360 aacgcggggag tgctgaacac atgcacctga gaggaccct gaggaccca ggtgacctga 420 ccataaaacc acccgaggg tcagccatgc tgccagcact caagaagcag cagggccacc dggggagaccag gctgacagg ctgcggacag cttgcagcact caagaagcag agggcacac ggaggcacg gctgcagacg cttgcagcact caagaagcaa acgtctttca atgatgtcat ccanctotto taaggcaac tgggcatgga acttggcac 660 gtcatcggg tccaac caagcacac tgggcatgga acttggcac 660 gtcatcggg tccaac tcaagcac tcgggcatgga acttggcac 660 gtcatcggg tccaac tcggcact gaggcatgga acttggcac 660 cacgttattc atgatgtcat ccanctotto taaggcaac tgggcatgga acttggcac 660 cacgtcatcgggc tccaac 420 cacgtatgga tccaac 420 cacgtcatcgggc tccaac 420 cacgtatggac 420 cacgtatggac 420 cacgtatggac 420 cacgtatggac 420 cacgtatggac 420 cacgtatggac 420 cacgtatggacac 420 cacgtatggacac 420 cacgtatggacact 420 cacgtatggacact 420 cacgtatggacact 420 cacgtatggacact 420 cacgtatggacact 420 cacgtatggacact 420 cacgtatgacacact 420 cacgtatgacacacacacacacacacacacacacacacac	acctccaact gcatctccta ctctgaaatg cctcttgag	c agccaagggt ggccagttct 120
glocatgitaa aatataatti caccaggtag acatcottot totaatgota gaggacagtg 3300 aacagggag tgctgaacac atgccotcg aaggaccot gaagaccaa gtgacctga 420 ccataaaacc acccgaggg tcagccatgc tgccagcact caagaagcag cagggacac 480 gccaganaa cottgggcacg gcctcgggt cotggccotc cacgtcott 540 ggaagtottot atgacgcag ggaacatgat ctbtottoc agcttottgtg gaaggacaag gaagttotte atgatgtcat ccanctott taaggccaac tgggcatgga acttggcac 660 gtcatcggc tccaaa <pre></pre>	geteeteatt tteetgaana anaateteag eetgaaaga	a tatagageta ggtgacatat 180
aaaaatgtag attaatgaga totgtaactg tottetetta actgtacacc octcaggotg 360 aacgogggag tgotgaacaca atgocotogg aaggagacct gaagaccaa gtgacctgca 420 ccataaaacc acccagagg tcagocatgo tgocagcact cagagacca cagagaccac 480 tgotggaana octgggcacg gotetgggg octgggcotg octgocotg octgocotc ocaggacat 540 ggaagccagg totacgggaa ggaacatgat ottottotco agottotty gaaggaacag 600 gaagttitte atgatgtcat ocanototic taaggocaac tgggcatgga acttggcac 660 gtcatogggc tocaaa 676 <210> 269 <211> 737 <212> DNA <212> DNA <213> Homo Sapiens <400> 269 aacaaagaca aagaaggcaa ggttitotac agcatoactg gccaaggag tgacacacc 600 cotgttggtg tottatat tgaaagagaa acaggatgg tgacacacc 600 cotgttggtg totttatata tgaaagagaa acaggatgg tgacacacc 600 cotgttggtg totttatata tgaaagagaa acaggatgg tgacacacc 600 cotgttggtg totttatata tgaaagagaa acaggatgg tgacacacc 600 cotgttggtgt otttatata 1900 cotgttgatga totttatoa acggaatgag tgaacactc 1200 cotgttggtg totttatoa acggaatgaga tgaacacct 1200 cotgttgatga totttatata 1900 cotgttagtgaagaa 1900 cotgttagtgaagaaa 1900 cotgttagtgaagaaa 1900 cotgttagtgaagaaa 1900 cotgttagtgaagaaaa 1900 cotgttagtgaagaaaaaaaaaaaaaaaaaaaaaaaaaaa	gggtggccaa ccgcttctcc tcaagttcca ananagtgg	g caattagtga aattccatca 240
aacgegggag tgctgaacac atgccetcgg aaggaccct gaagacccaa gtgacctgca 480 ccataaaaca accecgaggg tcagccatgc tgccagcac caagaagcag cagggccacc 480 tgctggaana cctgggcacg gctctgggtg cctggcctg cctgcctct ccacgtcctt 540 gggagccagg tcacagggacag ggaacatgat cttcttctcc agcttcttgtg gaaggaacag 660 gaagtttttc atgatgtcat ccanctcttc taaggccaac tgggcatgga acttggccac 666 gtcatcgggc tccaaa (210 > 269 <211 > 737 <212 > DNA <213 > Homo Sapiens <pre> </pre> <pre> <pre> </pre> <pre> </pre> <pre> <pre> </pre> <pre> <pre> </pre> <pre> <pre> </pre> <pre> <pre> <pre> </pre> <pre> <pre> <pre> </pre> <pre> <pre> <pre> <pre> <pre> <pre> <pre> </pre> <pre> <</pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre></pre>	addatateta attactet daccaggiag acatoctto	t ttcaatgcta gaggacagtg 300
ccataaaacc accccqaggg tcagccatgc tgccagcact caagaagcag cagggccacc 480 tgctggaana cctgggcacg gctctgggts cctagccctg cctgcctcct ccacqtcctt 540 ggaagccagg tctacggcag ggaacatgat cttcttctc agcttctgtg gaaggaacag 660 gaagtttttc atgatgtcat ccanctcttc taaggccaac tgggcatgga acttggccac 660 gtcatcggge tccaaa <210> 269 <211> 737 <212> DNA <213> Homo Sapiens <400> 269 aacaaagaca aagaaggcaa ggtttctac agcatcactg gccaaggagc tgacacacc 660 cctgttgtgtg tctttattat tgaaagagaa acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggatatg agttaqaat ccaatggag tgaacaccc 120 gtgtgtcatcaca acgggatatg gattaqaat ccaatggag tgaacactc 120 gtgtgtcatca acgggatatg agttaqaat ccaatggag tgaacaccc 120 gtgtcatcaca acgggatatg agttaqaat ccaatggaga tgaacactc 120 gtgtcatcaca acgggatatg agttaqaat ccaatggaga tgaacactc 120	aacgcgggag tgctgaacac atgccctcgg aaggagag	a actgtacacc cctcaggctg 360
tgottggaana cotggocacy gotottgggtg octggccctg octgoctoct ceacgtcott 540 gggagcoag totacggoag gaacatgat chtottectoc agottettgtg gaaggaacag 660 gaagttttte atgatgteat ceanctette taaggceaac tgggcatgga acttggccac 660 c76 c210 > 269 c211 > 737 c212 > DNA c213 > Homo Sapiens c400 > 269 aacaaagaca aagaaggcaa ggtttctac agcatcactg gccaaggagc tgacacaccc 60 accepttggtg tetttattat tgaaagagaa acaggatggc tgaagctett ctctcacaggt 120 cctgtgtgtg tetttattat tgaaagagaa acaggatggc tgaagctett ctctcacaggt 120 gtgtgtatcac acgggatggc acagggagc tgaacacacc 120 cctgttggtg tetttattat tgaaagagaa acaggatggc tgaagctett ctctcacaggt 120 gtgtgtaatcac acgggatggc acagggagc tgaacacacc 120 cctgttggtg tetttattat tgaaagagaa acaggatggc tgaagctett ctctcacaggt 120 cctgtgtgtacacacacggagatgga ctgaacacacc 120 cctgttggtg tetttattat tgaaagagaa caggatggc tgaagctett ctctcacaggt 120 cctgtgtgtaacacacacacacacacacacacacacacac	ccataaaacc acccqaqqq tcagccatgc tgccagcac	t caagaaccaa gtgacctgca 420
gggagccagg tctacagcag ggaacatgat cttcttctcc agcttctgtg gaaggaacag 660 666 gtcatcgggc tccaaa 660 666 gtcatcgggc tccaaa 660 666 666 gtcatcgggc tccaaa 660 666 666 666 666 666 666 666 666	tgctggaana cctgggcacg gctctgggtg cctgqcct	g cotgotoot coacatcott E40
gaagttttte atgatgteat ceanetette taaggeeaac tgggeatgga acttggeeac 660 gteateggge tecaaa 676 <210> 269 <211> 737 <212> DNA <132> Homo Sapiens <400> 269 aacaaagaca aagaaggeaa ggtttetac agcateactg gceaaggage tgacacacc 60 cetgttggtg teettatat tgaaagagaa acaggatgge tgaagetett etetcaegget 120 gtgteateca aegggaatgg agttagaaga tgaagatett etetcaegget 120 gtgteateca aegggaatgg agttagat ceaaggaga tgaagetett etetcaegget 120 gtgteateca aegggaatgg agttagate ceaaggaga tgaagetett etetcaegget 120 gtgteateca aegggaatgg agttagate ceaaggaga tgaagatett etetcaegget 120 gtgteateca aegggaatgg agttagate ceaaggaga tgaagatett etetcaegget 120 gtgteateca aegggaatgg agttagate ceaaggaag tgaagatett	gggagccagg tctacggcag ggaacatgat cttcttctc	c agettetgtg gaaggaacag 600
gtcatcgggc tccaaa 676 <210> 269 <211> 737 <212> DNA <213> Homo Sapiens <400> 269 aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacacc cctgttggtg tctttattat tgaaagaaga acaggatggc tgaagctctt ctctcacaggt 120 gtgtcatcca acgggaatgc agtttqatac ccaatggagc tgaagctctt ctctcacagct 120 gtgtcatcca acgggaatgc agtttacqaac acttgaagaagattacacac 120 gtgtcatcaca acgggaatgc agttgaaqaac ccaatggaagctctt ctctcacagct 120 gtgtcatcca acgggaatgc agttgaaqaac tctaatgaagaa ttttaatcac gtaaaccaac	gaagtttttc atgatgtcat ccanctcttc taaggccaa	c tgggcatgga acttggccac 660
<pre><211> 737 <212> DNA <213> Homo Sapiens <400> 269 aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtg tctttattat tgaaagaga acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggaattg agttaqqat ccaatqaaga ttttatacac ggtaaccacac 120 gtgtcatcca acgggaattg agttaqqat ccaatqaaga ttttatacac ggtaaccacacacacacacacacacacacacacacacaca</pre>	gtcatcgggc tccaaa	
<pre><211> 737 <212> DNA <213> Homo Sapiens <400> 269 aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtg tctttattat tgaaagaga acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggaattg agttaqqat ccaatqaaga ttttatacac ggtaaccacac 120 gtgtcatcca acgggaattg agttaqqat ccaatqaaga ttttatacac ggtaaccacacacacacacacacacacacacacacacaca</pre>	<210> 269	
<pre><213> Homo Sapiens <400> 269 aacaaagaca aagaagcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtgt ctttatatat tgaaagaga acaggatggc tgaagctctt ctctacacgct 120 ftgtcatcca acgggaatgc agtttaqqat ccaatqaaga ttttatatca gttaaccaa.</pre>		
<400> 269 aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtg tetttattat tgaaagaga acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggaattg agttaqqat ccaatqaaga ttttatacac ggtaaccacac	<212> DNA	
aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtg tctttatatat tgacagaga acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggaatgc aqtttaqqat ccaatqaga ttttatacac gttacaccat	<213> Homo Sapiens	
aacaaagaca aagaaggcaa ggttttctac agcatcactg gccaaggagc tgacacaccc 60 cctgttggtg tctttatatat tgacagaga acaggatggc tgaagctctt cctcacaggt 120 gtgtcatcca acgggaatgc aqtttaqqat ccaatqaga ttttatacac gttacaccat	×400- 200	
gtgtcatcca acgggaatgc agttgaggat ccaatggaga ttttgatcac ggtasccat		
gtgtcatcca acgggaatgc agttgaqqat ccaatggaga ttttgatcac ggtaaccgat	cotqttqqtq totttattat tqaaaqaqaa acaqqatqq	y yecaaggage tgacacacce 60
cagaatgaca acaagcccga attcacccag gaggtcttta aggggtctgt catggaaggt 240	gtgtcatcca acgggaatgc agttgaggat ccaatggag	a ttttgatcac ggtaaccgat 100
	cagaatgaca acaagcccga attcacccag gaggtcttt	a aggggtctgt catggaaggt 240

```
getettecag gaacetetgt gatggaggte acagecacag acgeggacga tgatgtgaac
                                                                   300
acctacaatg ccgccatcgc ttacaccatc ctcagccaag atcctgagct ccctgacaaa
                                                                   360
aatatgttca ccattaacag gaacacagga gtcatcagtg tggtcaccac tgggctggac
                                                                   420
cgagagagtt tccctacgta taccctggtg gttcaagctg ctgaccttca aggtqaqqqq
                                                                   480
ttaagcacaa cagcaacagc tgtgatcaca gtcactgaca ccaacgataa tcctccgatc
                                                                   540
ttcaatccca ccacgtacaa gggtcangtg cctganaaag aaggctaacg tcgttatcac
                                                                   600
caacactgaa aagtgactga tgcctgatgc cccccaatta ncccanccgt gggaagetqt
                                                                   660
ntacaccata tngaaatgat gatgggtggg cnaatttgtn cgttcaccaa caaatnccan
                                                                   720
gtggaacaac caatggg
                                                                   737
     <210> 270
     <211> 726
     <212> DNA
     <213> Homo Sapiens
     <400> 270
60
acctccaact gcatctccta ctctgaaatg cctcttgagc agccaagggt ggccagttct
                                                                   120
gctcctcatt ttcctgaana anaatctcag cctgaaagaa tatanagcta ggtgacatat
                                                                   180
gggtggccaa ccgcttctcc tcaagttcca ananagtggg caattagtga aattccatca
                                                                   240
gtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta gaggacagtg
                                                                   300
aaaaatgtag attaatgaga tetgtaactg tettetetta actgtacace ceteaggetg
                                                                   360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca
                                                                   420
ccataaaacc accccgaggg tengecatge tgccagcact caanaagcag cagggccacc
                                                                   480
tgctggaana cctgggcacg gctctgggtg cctggccctg cctgcctcct ccacgtcctt
                                                                   540
ggagccaggt ctacggcagg aacatgatet tettetecae ttetgtggaa ggaacangaa
                                                                   600
atttttcatg atgtctccan ctcttctagg gccactgggc atggancttg ggcncntcat
                                                                   660
cgggctccaa anacactact gcttcancag gtgggtanaa atccttgaag angggctcac
                                                                   720
acctcc
                                                                   726
     <210> 271
     <211> 814
     <212> DNA
     <213> Homo Sapiens
     <400> 271
60
acctecaact geatetecta etetgaaatg eetettgage agecaagggt ggeeagttet
                                                                   120
geteeteatt tteetgaaga agaateteag eetgaaagaa tatagageta ggtgacatat
                                                                   180
gggtggccaa ccgcttctcc tcaagttcca agagagtggg caattagtga aattccatca
                                                                   240
gtcatgttaa aatatacttt caccaggtag acatccttct ttcaatgcta gaggacagtg
                                                                   300
aaaaatgtag attaatgaga tetgtaactg tettetetta actgtacacc ceteaggetg
                                                                  360
aacgcgggag tgctgaacac atgccctcgg aagggaccct gaagacccaa gtgacctgca
                                                                  420
ccataaaaacc accccgaggg tcagccatgc tgccagcact caagaggcag cagggccacc
                                                                   480
tgctggaaga cctgggcacg gctctgggtg cctggccctg cctgcctcct ccacqtcctt
                                                                   540
ggagccaggt ctacggcagg accatgatct tettetecag ettetgtggg agggaacagg
                                                                   600
gaagtttttc aatgatgtca tccagctctt cctanggcca actgggcaag ggagcttggg
                                                                   660
caacgtcatc ggggctccag acaaaactac gtgcttcanc aanggtggta aaanatcctt
                                                                   720
gaaggacggg ggctcaacaa cccaagtanc ctttccnggg ctgaatcccc ngaaqcaaqc
                                                                  780
aagnacaaac cacatgtttt gggaagetee ggeg
                                                                   814
```

<210> 272 <211> 862 <212> DNA

<213> Homo Sapiens

780

```
<400> 272
gtacactgaa cagaaaagat ctggaaggga aaatagaaga gcagcaacaa accagtcatg
                                                                     60
aaagacccac tgatgtagct catagccacc ttgaacaaca gcagagccat gagacagccc
                                                                     120
cccagacagg cctgcagtca aatgctccaa tcattcctca aggagtcaat gagcccagca
                                                                     180
ctactacaaq tcagaaatct gqaagcgtaa ccacaqaaca gctccaaqaq gttcttttgt
                                                                     240
caqcttatqa ccctcaaatt ccaacacqqq ctqctqcct qcgtactctt tcccactqqa
                                                                     300
tagagcagag agaagcaaaa gcccttgaga tgcaagagaa gcttctcaag atattcttgg
                                                                    360
agaacttgga acatgaagac acttttgtat atctatctgc aattcagggg gttgccctgc
                                                                     420
tgtcagacgt ctatcctgag aaaatcttgc cggacttgtt ggctcaatat gacagcagca
                                                                     480
aagacaagca cacaccagag accaagaatg aaagtcgggg aagtccttat gcgaatcgtc
                                                                     540
agggcattag ggagacatgg teteaaagta eegagaacet ttgatteata eetteetgan
                                                                     600
gggagtgaga gattctggat ggtgctcaca agggcagcaa cttgggcaan cttgggggaa
                                                                     660
ctggtgccag aggctggact ttcngctggg gctccgtggg ccaatggagg gtacaanctt
                                                                     720
gccctgaatt gctgtgggcc aaaaacaaga tnggtgaaag tttaaagtta cgcaaaactg
                                                                     780
ccaatacaat gttgggttgt tgccnggctg gnnttccggg ggaatcaagc ccaggaaaag
                                                                     840
cctaccggan ggggccttaa ac
                                                                     862
      <210> 273
      <211> 677
      <212> DNA
      <213> Homo Sapiens
      <400> 273
60
acctecaact gcatctecta ctctgaaatg cctcttgagc agccaagggt ggccagttct
                                                                     120
geteeteatt tteetgaaga agaateteag eetgaaagaa tatagageta ggtgacatat
                                                                     180
qqqtqqccaa ccgcttctcc tcaagttcca agagagtggg caattagtga aattccatca
                                                                     240
qtcatgttaa aatatacttt caccaggtan acatccttct ttcaatgcta qaqqacaqtq
                                                                     300
aaaaatqtag attaatgaga tetgtaactg tettenetta actgtacacc ceteaqgetq
                                                                     360
aacqcqqqaq tqctqaacac atgccctcqq aaqqqaccct qaaqacccaa qtqacctqca
                                                                     420
ccataaaacc accccgaggg tcagccatgc tgccaagcac tcaagaggca gcagggccac
                                                                     480
ctqctgqaan acctggqcac ggntctgggt gcctqggccc tqcctqcctc ctccanqtcc
                                                                     540
ttggggccaa gtctaaggga agggaccaat gatcttcttc cccaaacttc tgtggagggg
                                                                     600
aaaaaaggaa ntttttcaag gngqtcatcc nangctcctc caagggqnca aaatgggggc
                                                                     660
antqqaacct tqqqcaa
                                                                     677
      <210> 274
      <211> 863
      <212> DNA
      <213> Homo Sapiens
      <400> 274
qaaaacagca aagttgaagt caagtgattt tgctqttctg aagcagttgt tgcctctqtt
                                                                      60
qqaqaaqqta tccaacacat accetgatee qqtcatecaa qaacteqetg ttqateteeq
                                                                     120
catcaccatc tctacccatg gagcctttgc cactgaggcc gtcagcatgg ctgcccaaag
                                                                     180
tacactgaac agaaaagatc tggaagggaa aatagaagag cagcaacaaa ccagtcatga
                                                                     240
aagacccact gatgtagctc atagccacct tgaacaacag cagagccatg agacagcccc
                                                                     300
ccagacagge etgeagteaa atgetecaat catteeteaa ggagteaatg ageecageae
                                                                     360
tactacaagt cagaaatctg gaagcgtaac cacagaacag ctccaagagg ttcttttqtc
                                                                     420
agettatgac ceteaaatte caacaeggge tgetgeeetg egtactettt eccaetqqat
                                                                     480
agaqcaqaga gaaqcaaaag cccttgaqat gcaaqaqaag cttctcaaqa tattcttqqa
                                                                     540
aaacttggaa catgaagaca cttttgtata tctatctgca attcaggggg ttgccctgct
                                                                     600
gtcagacgtc tatcctgaga aaatcttgcc ggacttgttg gctcaatatg acagcagcaa
                                                                     660
```

agacaagcac acaccaagag accaagaatg aaagtcgggg aagtccttat gccaatcgtc

anggcattag ggagacatgg tctcaaagta accgagaacc tttgattcat accttcctqa

aggggaatta gagattetga aacetgtgee anaaggetng	atg g tgctca gac	cagggeeaae	aaccttggen	aaccttgggg	840 863
<210> 275					
<211> 273					
<212> DNA					
<213> Homo Sapie	ens				
<400> 275					
ccatccaaga taactttatt	ccattttcca	ttatttgata	actatttcct	teceeteese	60
acctccaact gcatctccta	ctctgaaatg	cetettgage	agccaagggt	ggccagttct	120
gctcctcatt ttcctgaaga	agaatctcag	cctgaaagaa	tatagageta	ggtgacatat	180
gggtggccaa ccgcttctcc	tcaagttcca	agagagtggg	caattagtga	aattccatca	240
gtcatgttaa aatatacttt	caccaggtag	acatecttet	ttcaatgcta	gaggacagtg	300
aaaaatgtag attaatgaga	tctgtaactg	tcttctctta	actgtacacc	cctcaggetg	360
aacgcgggag tgctgaacac	atgccctcgg	aagggaccct	gaagacccaa	gtgacctgca	420
ccataaaacc accccgaggg	tcagccatgc	tgccagcact	caagaggcag	cagggccacc	480
tgctggaaga cctgggcacg	gctctgggtg	cctggccctg	cctgcctcct	ccacgtcctt	540
ggagccaggt ctacggcagg	accatgatet	tettetecaa	gcttctgtgg	agggaacagg	600
aagtttttca tgatgtcatc	caagctcttc	tanggccaac	tgggcatgga	gcttgggcac	660
gtcatcgggc tccagacaca	ctacgtgctt	cancaaggtg	gtaaaagatt	cttganggac	720
ggngctcanc acctcagtaa	netttetgge	tgagtccccc	gaaagcaaca	gcacaancca	780
catgining aaaccitgeg	ccaeccnigaa	CLECAACAAC	е		821
<210> 276					
<211> 722					
<212> DNA					
<213> Homo Sapie					
(213) HOMO Sapie	:119				
<400> 276	:115				
<400> 276		cgataatcct	ccgatcttca	atcccaccac	60
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg	ctgacaccaa agaacgaggc	taacgtcgta	atcaccacac	tgaaagtgac	60 120
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gcccccaata	ctgacaccaa agaacgaggc ccccagcgtg	taacgtcgta ggaggctgta	atcaccacac tacaccatat	tgaaagtgac tgaatgatga	
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc	taacgtcgta ggaggctgta agtgaacaac	atcaccacac tacaccatat gatggcattt	tgaaagtgac tgaatgatga tgaaaacagc	120
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttct	taacgtcgta ggaggctgta agtgaacaac gaagcagttg	atcaccacac tacaccatat gatggcattt ttgcctctqt	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt	120 180
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgctg gatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgata atccaacaca taccctgatc	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttct cggtcatcca	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct	atcaccacac tacaccatat gatggcattt ttgcctctgt gttgatctcc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat	120 180 240
<pre><400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcetttg</pre>	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttct cggtcatcca ccactgaggc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg	atcaccacac tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgcccaaa	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa	120 180 240 300
<400> 276 aacagctgtg atcacagtca gtacaaggtc cag tgatyctgat gccccaata tggtygacaa tttgtcgtca aaagttgaag tcaagtgat atccaacaa taccetgatc ctctaccaat gagacettig cagaaaagat ctggaaggag	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttctc cggtcatcca ccactgaggc aaatagaaga	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa	atcaccacac tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgcccaaa accagtcatg	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac	120 180 240 300 360 420 480
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagccttg cagaaagaat ctggaaggga tgatgtagct catagccacc	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatec ttgctgttet cggtcatcca ccactgagge aaatagaaga ttgaacaaca	taacgtcgta ggaggetgta agtgaacaac gaagcagttg agaactcget cgtcagcatg gcagcaacaa gcagagccat	atcaccacac tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgcccaaa accagtcatg gaagacagcc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccaqacag	120 180 240 300 360 420 480 540
<pre><400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcetttg cagaaaagat ctggaagga tgatgact catagccacc gcctgcagtc aaatgctca</pre>	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttet cggtcatcca ccactgaggc aaatagaaga ttgaaccaac atcattcctc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgtc ggcagcaacaa gcagaaccaa gcagagccat aaggagtcaa	atcaccacac tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgcccaaa accagtcatg gaagacagcc tgagcccaqc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacag actactacaa	120 180 240 300 360 420 480 540
<400> 276 aacagctgtg atcacagtca gatacaaggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag taccaacaa taccctgatc ctctacccat ggagcctttg cagaaaggat ctggaaggtagtagtagct catagccac gcctgcagtc aaatgctcca gcagaaggta taggacgtt gatagtagct catagcacc gcttgaagtat tggaagggt	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttot cggtcatca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgcetetgt gttgatetec gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccetgatc ctctacccat ggagcctttg cagaaaggat catagccacc gctgcagtc aatgctacc atcacac gcagaaggct catagcaacc gctgcagtca aaatgctcca gtcagaaatc tggaagaggtt	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttot cggtcatca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgcetetgt gttgatetec gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<400> 276 aacagctgtg atcacagtca gatacaaggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag taccaacaa taccctgatc ctctacccat ggagcctttg cagaaaggat ctggaaggtagtagtagct catagccac gcctgcagtc aaatgctcca gcagaaggta taggacgtt gatagtagct catagcacc gcttgaagtat tggaagggt	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttot cggtcatca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600
<400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccetgatc ctctacccat ggagcctttg cagaaaggat catagccacc gctgcagtc aatgctacc atcacac gcagaaggct catagcaacc gctgcagtca aaatgctcca gtcagaaatc tggaagaggtt	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttot cggtcatca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatyctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcetttg cagaaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gcagaacat tggaagcgtt gaacctcaaa ttccaacacg ca</pre> <pre><210> 277 <211> 805</pre>	ctgacaccaa agaacgaggc ccccagcgtg ccacaaatcc ttgctgttot cggtcatca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<pre><400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt ctctacccat ggagcctttg cagaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gtcagaaatc tggaagcgt gaacctcaaa ttccaacacc c</pre>	ctgacaccaa agaacgaggc ccccagggtg ccacaaatcc ttgctgttct cggtcatcca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac gggctggtgc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatyctgat gccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcetttg cagaaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gcagaacat tggaagcgtt gaacctcaaa ttccaacacg ca</pre> <pre><210> 277 <211> 805</pre>	ctgacaccaa agaacgaggc ccccagggtg ccacaaatcc ttgctgttct cggtcatcca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac gggctggtgc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<pre><400> 276 aacagctgtg atcacagtca gtacaagggt caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt ctctacccat ggagcctttg cagaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gtcagaaatc tggaagcgt gaacctcaaa ttccaacacc c</pre>	ctgacaccaa agaacgaggc ccccagggtg ccacaaatcc ttgctgttct cggtcatcca ccactgaggc aaatagaaga ttgaacaaca atcattcctc accacagaac gggctggtgc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agaactcgct cgtcagcatg gcagcaacaa gcagagccat aaggagtcaa agctcaagag	atcaccacac tacaccatat gatggcatts ttgctctgt gttgatctcc gctgcccaaa accagtcatg gaagaccagcc tgagcccagc	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacaa ccctactacaa tcagctttat	120 180 240 300 360 420 480 540 600 660
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatgctgat gcccccaata tggtgdacaa tttgtggtcaa taccaacaac tacctgatc ccagaaaagat caagtgata tatccaccat ggagcctttg cagcaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gtcagaaatc tggaaggtt gaacctcaaa ttccaacacg ca <210> 277 <211> 805 <212> DNA <213> Homo Sapid <400> 277</pre>	ctgacaccaa agaacgaggc ccacaatcc ttgctgttct cggtcatcca ccactgaggc aaatagaaga ttgaacaaca atcattcca accacagaac gggctggtgc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agsactcggc cgtcagcatg gcagcaacaa gcagcaacaa gcagagccat aaggagtcaa agctccaaga ctgcgttact	atcaccaca tacaccatat gatggcattt ttgcctctg gttgatctcc gctgcccaaa accagtcatg gagacagcc tgagccagc ggttcntttg cnttcccact	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactga aaagaccac ccccagacag actactacaa tcagctttat gggntagaag	120 180 240 300 360 420 480 600 660 720 722
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcctttg cagaaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gcagaacat tggaagcgtt gaacctcaaa ttccaacacg ca </pre> <pre><210> 277 <211> 805 <212> DNA <213> Homo Sapid </pre> <pre><400> 277</pre> <caccaccacgataccaccaccaccaccaccaccaccaccaccaccaccac< td=""><td>ctgacaccaa agaacgaggc ccccaagtcg ccacaatcc ttgctgttct ttgctgttct ccactgaggc aaatagaaga ttgaacaaca atcattcctc accatgacgc accacagaac gggctggtgc</td><td>taacgtcgta ggaggctgta agtgaacaac gaagcagttg agsactcgct cgtcagcattg gcagcaacaa gcagcagcaat acagagccat aagcagcacat aagctccaaga ctgcgttact</td><td>atcaccaca tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgccaaa accagtcatg gaagacagcc tgagccaagc ggttcntttg cnttcccact</td><td>tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt ggacaccat gtacactgaa aaagacccac ccccagacag actactacaa tcagctttat gggntagaag</td><td>120 180 240 300 360 420 480 540 600 720 722</td></caccaccacgataccaccaccaccaccaccaccaccaccaccaccaccac<>	ctgacaccaa agaacgaggc ccccaagtcg ccacaatcc ttgctgttct ttgctgttct ccactgaggc aaatagaaga ttgaacaaca atcattcctc accatgacgc accacagaac gggctggtgc	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agsactcgct cgtcagcattg gcagcaacaa gcagcagcaat acagagccat aagcagcacat aagctccaaga ctgcgttact	atcaccaca tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgccaaa accagtcatg gaagacagcc tgagccaagc ggttcntttg cnttcccact	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt ggacaccat gtacactgaa aaagacccac ccccagacag actactacaa tcagctttat gggntagaag	120 180 240 300 360 420 480 540 600 720 722
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatyctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccetgatc ctctacccat ggagcetttg cagaaagaat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gtcagaaaat ttggaaggt gacctcaaa ttccaacacg ca <210> 277 <211> 805 <212> DNA <213> Homo Sapic <440> 277 ccatccaaga taactttat acctccaact ggatctcata cagaacattatt acctccaact gcatcccta </pre>	ctgacaccaa agaacgaggc ccacaatcc ttgctgttct cggtcatcca ccactgaggc aactagaga ttgaacaaca atcattcca accacagaac gggctggtgc ens ccattttgca ctctgaacac atcattcatagac	taacgtcgta ggaggctgta agtgaacaac gaagcagttg agtgaacaac gcagcagcagt gcagcaacaa gcagagcaacaa gcagagccat aagtccaaga ctgcgttact ttatttgata cctcttgagc cctgaagaag	atcaccaca tacaccatat gatggcattt ttgcctctg gttgatctcc gctgccaaa accagtcatg gaagacagcc ggttcntttg cnttcccact	tgaaagtgatgatgaagatgatgagaagatgtgagaagatgtgagaaggtgaagatgtacacatgaaaagaccacccagacaga	120 180 240 300 360 420 480 540 600 720 722
<pre><400> 276 aacagctgtg atcacagtca gtacaaggtc caggtgcctg tgatgctgat gcccccaata tggtggacaa tttgtcgtca aaagttgaag tcaagtgatt atccaacaca taccctgatc ctctacccat ggagcctttg cagaaaagat ctggaaggga tgatgtagct catagccacc gcctgcagtc aaatgctcca gcagaacat tggaagcgtt gaacctcaaa ttccaacacg ca </pre> <pre><210> 277 <211> 805 <212> DNA <213> Homo Sapid </pre> <pre><400> 277</pre> <caccaccacgataccaccaccaccaccaccaccaccaccaccaccaccac< td=""><td>ctgacaccaa agaacgaggc ccccacgctg ccacaaatcc ttgctgttct tcggtcatcca ccactgaggc aaataqaaga ttgaacaaca atcattcctc aggcctggtgc ans ccattttgca ctctgaaatg agaatctcag agaatctcag</td><td>taacgtcgta ggaggctgta agtgaacaac gaagcagttg gagaactegc cgtcagcatg gcagcaacaa agcaggagccat aggaggccat aggtcaagatcaa ctgcgttact</td><td>atcaccacat tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgccaaa accagtcatg gaagacagcc tgagcccatg gnttcnttcccact actattcct agccaagggt tatagagctat tatagagcta</td><td>tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacag actattacaa tcagctttat gggntagaag</td><td>120 180 240 300 360 420 480 540 600 720 722</td></caccaccacgataccaccaccaccaccaccaccaccaccaccaccaccac<>	ctgacaccaa agaacgaggc ccccacgctg ccacaaatcc ttgctgttct tcggtcatcca ccactgaggc aaataqaaga ttgaacaaca atcattcctc aggcctggtgc ans ccattttgca ctctgaaatg agaatctcag agaatctcag	taacgtcgta ggaggctgta agtgaacaac gaagcagttg gagaactegc cgtcagcatg gcagcaacaa agcaggagccat aggaggccat aggtcaagatcaa ctgcgttact	atcaccacat tacaccatat gatggcattt ttgcctctgt gttgatctcc gctgccaaa accagtcatg gaagacagcc tgagcccatg gnttcnttcccact actattcct agccaagggt tatagagctat tatagagcta	tgaaagtgac tgaatgatga tgaaaacagc tggagaaggt gcatcaccat gtacactgaa aaagacccac ccccagacag actattacaa tcagctttat gggntagaag	120 180 240 300 360 420 480 540 600 720 722

```
aaaaatqtag attaatgaga totgtaactg tottototta actgtacacc cotcaggotg
                                                                      360
aacgegggag tgctgaacac atgecetegg aagggaceet gaagacecaa gtgacetgea
                                                                      420
ccataaaacc accccgaggg tcagccatgc tgccagcact caagaggcag cagggccacc
                                                                      480
tgctgggaag acctgggcac ggctctgggt gcctgggccc tqcctqcctc ctccacqtcc
                                                                      540
ttggagccaa ggtctacggc aggaccatga tcttcttctc cagcttctgt ggagggaaca
                                                                      600
ngaagttttt caagatgtca tecaacteet ecaagggeca actggggeat gggaqeettg
                                                                      660
geacgteatn egggeteeag acacactaeg gtgetteaac aagggnggta nagattettg
                                                                      720
anggacgggg ctcaaacaat gaacctcant tacctttcng gctgagtccc cnaaagcaac
                                                                      780
aaqtacaaac cacatqtttt qqqaa
                                                                      805
      <210> 278
      <211> 1358
      <212> DNA
      <213> Homo Sapiens
      <400> 278
agaactcaga gctgctcttc ctctgtggcc agttggggac cagcatcatg aagtggatgg
                                                                       60
tggtggtctt ggtctgcctc cagctcttgg aggcagcagt ggtcaaagtg cccctqaaqa
                                                                      120
aatttaagtc tatccgtgag accatgaagg agaagggctt gctgggggag ttcctgagga
                                                                      180
cccacaagta tgatcctgct tggaagtacc gctttggtga cctcagcgtg acctacgagc
                                                                      240
ccatggccta catggatgct gcctactttg gtgagatcag catcgggact ccaccccaga
actteetggt cetttttgac accggetect ccaacttgtg ggtgccetet gtetactgce
                                                                      360
agagecagge etgeaceagt caeteceget teaaceceag egagtegtee acetacteca
                                                                      420
ccaatgggca aaccttctcc ctgcagtatg gcagtggcag cctcaccggc ttctttggct
                                                                      480
atgacaccet gactgtccag agcatccaan gtccccaacc aggagttcgg cttgagtgag
                                                                      540
aatnageetg ggtaccaact tegtetaage geagtttgat ggeateatgg geetggeett
                                                                      600
accetgetet gteegtggat gaggecacca cagtatgeag ggeatgtgea ggagggegee
                                                                      660
ctnaaccagc cccgtnttca gggtttacnt cagcaaccag cagggctccc agcgggggag
                                                                      720
cggttgtcct ttgggggtgt ggatagcagc ntgtacacgg ggcagatcta ctgggcgcnt
                                                                      780
gtcacccagg aactctactg gcagattggc attgaagagt tcctcatcgg cggccaggcc
                                                                      840
teeggetggt gttetgaggg ttgecaggec ategtggaca caggeacete tetgeteact
                                                                      900
gtgccccagc agtacatgag tgctcttctg caggccacag gggcccagga ggatgagtat
                                                                      960
ggacagtttc tcgtgaactg taacagcatt cagaatctgc ccagcttgac cttcatcatc
                                                                     1020
aatggtgtgg agtteeetet gecacettee teetatatee teagtaacaa eggetaetge
                                                                     1080
accgtgggag tcgagcccac ctacctgtcc tcccagaacg gccagcccct gtggatcctc
                                                                     1140
ggggatgtct tcctcaggtc ctactattcc gtctacgact tgggcaacaa cagagtaggc
                                                                     1200
tttgccactg ccgcctagac ttgctgcctc gacacgtggg ctcccctctt cctcttgacc
                                                                     1260
etgeaccete etagggeatt gtatetgtet ttecactetg gatteageet tettttetg
                                                                     1320
gactotggac tttctctaat aataaatagt tottcttt
                                                                     1358
      <210> 279
      <211> 702
      <212> DNA
      <213> Homo Sapiens
      <400> 279
gaagcaatga atacgcaatt agaactttca gaacaactta aatttcagaa caactctgaa
                                                                       60
gataatgtta aaaaactaca agaagagatt gagaaaatta ggccaggctt tgaggagcaa
                                                                      120
attttatatc tgcaaaagca attagacgct accactgatg aaaagaagga aacagttact
                                                                      180
caactccaaa atatcattga ggctaattct cagcattacc aaaaaaatat taatagtttg
                                                                      240
caggaagagc ttttacagtt gaaagctata caccaagaag aggtgaaaga gttgatgtgc
                                                                      300
cagattgaag catcagctaa ggaacatgaa gcagagataa ataagttgaa cgagctaaaa
                                                                      360
gagaacttag taaaacaatg tgaggcaagt gaaaagaaca tccagaagaa atatgaatgt
                                                                      420
gagttagaaa atttaaggaa agccacctca aatgcaaacc aagacaatca gatatqttct
                                                                      480
attotottgo aagaaaatao atttgtagaa caaagtagta aatgaaaaag tcaaacaott
```

540

ttatatgaat aateettaag tttaaaaett gaaaatggga	cttaaaaaga tgag	ggtaac 600
gtngaggttt tttccangna accgggggaa gaccttaaaa	igeeteaace attt	
gengaggeee eececangna acegggggaa gacectaaaa	99	702
<210> 280		
<211> 874		
<212> DNA		
<213> Homo Sapiens		
(213) Homo Sapiens		
<400> 280		
aactcaaaac agtgttaagt tectatgetg ttagtactgt		
aacagtgaga tetetgagca catggtetgt aceteaacea	atettgteea cace	tcaaac 60
agastagttg gggatttass tassatttas tassatta	culticuate acca	gggtct 120
agaatagttg ggcatttaaa taaaatttgc taaatgaatg gaagccattt ataaatcaca ccaatcttgc ttgggttaaa	aaaaatccaa aata	aatcat 180
Gaagagaaa gcaaacagat gttagagag gaagatata	caatagaaag taac	actttt 240
gaaagagaag gcaaacaggt gttagagggg caagaatgtg	agetegagga aaag	acagct 300
acgaactgtg tttttaacaa ctcattattt ggctactata	tttcccaatc tatt	ctaaca 360
ctaagaagaa tetgtetaat taattgtgac aacatetgca	aaaccatagt tacc	tatttt 420
ttcttccaac tcttttactg aagacagagg atcattttt	acagaaggtg attt	tgctaa 480
ggaatcctan attttacagg ggggaaaaaa aaacacnaaa	caaaacaaaa acca	gaatca 540
gaattcattt tccataatga actggccatc ntgttaagca	taanaaaatc acta	tcaaag 600
anaatteeta cagaaaccaa tttggteaca gaattteeet	tgttanacca gaaa	attaat 660
actgaactta ctatgcatat ggcatttact attaaaaaa	aaaaagtant aacc	aaggcc 720
aaganaaaca acctgaaaca ttaaatacat ntttataagg	aaaaantaaa tgaa	ttttaa 780
tottaatttt aaanaaaaac cnaaaatttt nncatacccc	cccgctctta ctta	aaaant 840
gnottaccaa aatactaano ottocccaa aaco		874
<210> 281		
<211> 730		
<212> DNA		
<213> Homo Sapiens		
<400> 281		
acaaaacagc agctggaaag agaaatgtag gtggcagacg	agccaggcac gagg	tttcag 60
attggaaggg accaagatga ggaccaaggt gtggctgcct	gactaggaac gctg	tgggct 120
ggeccagget etegecacac ateetgggan aactgecata	ggccctagaa ggag	ggatga 180
aaggegtatg ggagggaana cageggteee eggateagea	gcagcaccac catc	ctctga 240
tggcccctgg gcagtccgcc agctcggaag cactcagggc	tggagcctgg gctc	taagca 300
tgggcccag gagccanaca ggagggaggc agcaggaang	gctggcatgg aagg	gctgag 360
ttctattggg gtcccacgcg ggcaagggaa ccaggactca	tecetgettg teag	ccaatc 420
agettettea ggaageetee aactgateet cateettgat	gcccacaaac ttgt	ccacca 480
egtececatt etteatggee ageacagtgg geacegetga	cacctcatac tcaa	tggcga 540
agtotgtgtg gtcntcaata tccaccttgg ccatcaccac	cttcccgtgc tgct	tggcca 600
ccatcttctc taacctccgn cccangatct tcagggtcca	caccactgtg cgtg	gaaatc 660
cacaaccact ggtgtctcct gtttgaacac tccgtcttga	aantengtee ntee	
ttaaaggttg		730
<210 202		
<210> 282		
<211> 699		
<212> DNA		
<213> Homo Sapiens		
4100× 2002		
<400> 282		
agaactcaga gctgctcttc ctctgtggcc agttggggac	cagcatcatg aagt	ggatgg 60
tggtggtctt ggtctgcctc cagctcttgg aggcagcagt	ggtcaaagtg cccc	tgaaga 120

aatttaagte tateegtgag accatgaagg agaagggett getgggggag tteetgagga

```
cccacaagta tgatcctgct tggaagtacc gctttggtga cctcagcgtg acctacgagc
ccatggccta catggatgct gcctactttg gtgagatcag catcgggact ccaccccaga
                                                                       300
acttectggt cetttttgac accggetect ccaacttgtg ggtgecetet gtetactgee
                                                                       360
agagecagge etgeaceagt cacteceget teaaceceag egagtegtee acetacteca
ccaatgggca aaccttetee etgeagtatg geagtggeag ceteaeegge ttetttgget
                                                                       480
atgacaccct gactgtccag agcatccaan gtccccaacc aggagttcgg cttgagtgag
                                                                       540
aatnagcctg ggtaccaact tegtetaage gcanttttga tgggatcaag ggcetgggce
                                                                       600
taacctgget etgteeegtt ggattaagge caccacaage tatntaggge nattnggnte
                                                                       660
aaggatgggt gtcnctttat nnagcccccg tnctttcaa
                                                                       699
      <210> 283
      <211> 759
      <212> DNA
      <213> Homo Sapiens
      <400> 283
gaaattgaga actgatttaa tactaaagtt ctgaataaag gtgtgcactt tatgattgat
                                                                       60
totatotttt tgcacaagtt ggatactcca gtttcccatc ccaacatgtt gttcgcaatg
                                                                       120
tgtgagaacg tgatgaaaga cgatatcccc gtttacacac aaattcaact gattcacctg
                                                                      180
ttctcgaata aagcttctgt ttggctgtcc accttaatgc tatgttataa ttttccataa
                                                                      240
tttctcggga tattacacac ggatgtaagc attttggtgg ttctgaccat tgtccatttc
                                                                      300
tacatgttat tegettgtta ceetcaagtt gatacaagtt etggeattgg tactcaactg
                                                                      360
atgaagetgg agcatatact gacaacggga atgaagtaat gtccccattg tcaataggtg
                                                                      420
gagggggccc acattttcct gtagaatctt tgcattgagg tggttccgtc cagtttccat
                                                                      480
ttaaacacat cacttettea teeccaaaca ttteataagg geteetacat tgataacgta
                                                                      540
ctctctcacc agatggatat ttactcatct gtctcgacac tatataagca ttttgtactg
                                                                      600
tqqqcqqatt ccacangang tqtctctqca tqttqqqctt cctqtccact gctattaatq
                                                                      660
catgitacat tactggctcc accattitgt aatatgitgc acaagittia gtccttgctc
                                                                      720
accccttat acacatcctt ctctctccat gggtttggc
                                                                      759
      <210> 284
      <211> 764
      <212> DNA
      <213> Homo Sapiens
      <400> 284
ggaccgcgat gacgcagact ggagggaggt gatgatgccc tattcgacag aactgatatt
ttatattgaa atggateete cagetettee accaaageea cetaageeaa tgaetteage
                                                                      120
agttccaaca tggaatgaag gacagttctg tttctcttca ggatgcagaa tggtactggg
                                                                      180
gggatatttc aagggaggag gtaaatgaca aattgcggga tatgccagat gggaccttct
                                                                      240
tggtccgaga tgcctcaaca aaaatgcagg gagattatac tttgactttg cggaagggag
                                                                      300
gcaataataa gttaataaag atctatcacc gggatggtaa atatggcttt tctgatcctc
                                                                      360
tgacatttaa ttccgtggtg gagctcatta accactatca ccatgaatct cttgctcagt
                                                                      420
acaatcccaa acttgatgtg aagctgatgt acccaagtgt ccagatacca acaggatcag
                                                                      480
ttggtaaaag aagataatat tgatgcagta ngtaaaaaac tgcaagaata ccactctcaa
                                                                      540
gtatcaggag aagagtaaag gagtatgata ngctgtatga agaatatact agaacatccc
                                                                      600
aaggaaatac agatgaagag gactgcaata gaaagctttt aatgaaaaca ttaaaatatt
                                                                      660
tggaagagca ntgtcacaca caaggaacca acattnccaa agaatatatt gagnngattt
                                                                      720
cncaaaanaa ggggaaatga aaagggggan ttgaacgaaa ttta
                                                                      764
      <210> 285
      <211> 586
```

ZIT> 289

<212> DNA

<213> Homo Sapiens

```
<400> 285
gcattgcacc ttttctttac ccatacaaac aagttacaaa ggtttcaaac aacagntcat
tetttagget aaggaaacac catacaagca ccaactteat tttangatte aaageteace
                                                                      120
atccccacaa aaagaatgct attccncatc tcagagaaac aggcaggaag gacanaaggg
                                                                      180
gttagttaca gtgatcaatt ttagcgtttg ctaaaacnca caaattcnag ncttttaag
ttcaagtttt ggtacagaag tatacattca actatgagtg ccacgttttc ccatcaaaca
                                                                      300
ttggnctggc aacaaactgt tttgttggct tctgaacata atacttcttc anagggaggg
                                                                      360
gctggtgaaa tgctgaancc taaattatgt tggnaagaaa caaagtacct tcanttgaag
                                                                      420
gtttttttta acancingge ttaaattatt taaatgaaan eecaageete cenatitnee
                                                                      480
tttggtngcc ttttncanaa aatcccattc natcacaaaa ccctaaaaaag ccttcttcgt
                                                                      540
ngggggaaa aaananactg ccaaangcaa aaacaaaaac ncccaa
                                                                      586
      <210> 286 ·
      <211> 666
      <212> DNA
      <213> Homo Sapiens
      <400> 286
gcctggagtt cagtgggtgc agcctgcttg cgagctgagg ccagacaggg gggcgcctac
                                                                      60
ggacggaaaa gaaaagttga ttacaaacgg gaccatattt tgcttcgaaa tggaaccagc
                                                                      120
agttagegag ccaatgagag accaagtege acggacteat ttgacagagg acacteccaa
                                                                      180
agtgaatget gacatagaaa aggttaacca gaatcaggee aagagatgea cagtgategg
                                                                      240
gggctctgga ttcctggggc agcacatggt ggagcagttg ctggcaagag gatatgctgt
                                                                      300
caatgtattt gatatccagc aagggtttga taatccccag gtgcggttet ttctgggtga
                                                                      360
cctctgcagc cgacaggatc tgtacccagc tctgaaaggt gtaaacacag ttttccactg
                                                                      420
tgcgtcaccc ccaccatcca gtaacaacaa ggagctcttt tatagaagtg aattacattg
                                                                      480
gcaccaagaa tgtcattgaa acttgcaaag aggctggggt tcagaaactc attttaacca
                                                                      540
gcagtgccat gtcatctttg agggcgtcga tatcaagaat ggaactgaaa gaccttccct
                                                                      600
nagccattga aaccaattga cctactacac aaganactaa agatcttaca ngagaaggca
                                                                      660
atttct
                                                                      666
     <210> 287
     <211> 782
      <212> DNA
      <213> Homo Sapiens
      <400> 287
gacaqagaac aaatcggtat aatatgaagc tgcctgcttc aagaaatcca aatccagttc
                                                                      60
catgaaggaa gaaatgtctg tttttgccgc cctcatcgtc acggaaagag tagggtgcgc
                                                                      120
tetetgeeta geagaaggag teacaggete agagcaaact catteaaagg atgttattte
                                                                      180
atcaatccac aggggaagga gtgactggct gagcaacgtg tcgagagagc ccagcctcca
                                                                      240
gtgtccctca cttgaccctc cgcaggtggc gaaagctctg cacggtcctc tccatagcat
                                                                      300
catccatggt cactagtggc tggtagccca tggccttttt ggctctctcg cagctgtagt
                                                                      360
agtggaatgt gccagccagt gcgacccgca tgggtgtgaa ggtgggctgc agctggatga
                                                                      420
caggactgat caccatcacc agcagggata gcaggaggc caggtagtag gccacccagt
                                                                      480
aggggatgtg gtacttgggg gcctcataat tgaggcctgt caaggatgcg agacaggaat
                                                                      540
gtccaaaaag ggatgggctc atcattggtg atgtgaaatg ccttcccacc cagtgtcgag
                                                                      600
tetengggan anetgetetg cegecaagat tgtccatggg accaaggtte teacaaaggt
                                                                      660
gaaagtccac caagttcctc ccaatttcca atcacgaaac ttcaaccttg ccgttcctqg
                                                                     720
ctgcctccat gaaggatggg ttacaaactg ccgggttccc tttggggccg aaaaattgcc
                                                                      780
aa
                                                                      782
      <210> 288
```

<211> 707

<212> DNA

<213> Homo Sapiens

<400> 288 gtggttccag cgccggtttt gaccgccaca ttaccatttt ttcacccgag ggtcggctct 60 accaagtaga atatgetttt aaggetatta accagggtgg cettacatca gtagetgtea 120 gagggaaaga etgtgcagta attgtcacac agaagaaagt acetgacaaa ttattggatt ccagcacagt gactcactta ttcaagataa ctgaaaacat tggttgtgtg atgaccggaa 240 tgacagetga cageagatee caggtacaga gggcaegeta tgaggcaget aactggaaat 300 acaagtatgg ctatgagatt cctgtggaca tgctgtgtaa aagaattgcc gatatttctc 360 aggictacac acagaatget gaaatgagge etetiggitig tigtatgatt tiaattggta 420 tagatgaaga gcaaggccct caggtatata agtgtgatcc tgcaggttac tactgtgggt 480 ttaaagccac tgcagcggga gttaaacaaa ctgagtcaac cagcttcctt gaaaaaaaaag 540 tgaagaagaa atttgattgg acatttgaac agacagtgga aactgcaatt acatgcctgt 600 ctactgttcc atcaattgan ttcaaacctt cagaaataga aattgggagt aatgacagtt 660 gaaaatccta aattcangan tcctacagaa gcagagattg atgctca 707

<210> 289 <211> 673 <212> DNA

<213> Homo Sapiens

<400> 289

atggcaccat cacaacaaag gaacttggaa ctgtcatgag gtcactgggt cagaacccaa 60 cagaagetga attgcaggat atgatcaatg aagtggatge tgatggtaat ggcaccattg 120 acttccccnn atttttgact atgatggcta gaaaaatgaa agatacagat agtgaagaag 180 aaatccgtga ggcattccga gtctttgaca aggatggcaa tggttatatc agtgcagcag 240 aactacgtca cgtcatgaca aacttaggag aaaaactaac agatgaagaa gtagatgaaa 300 tgatcagaga agcagatatt gatggagacg gacaagtcaa ctatgaagaa ttcgtacaga tgatgactgc aaaatgaaga cctactttca actcettttt cccccctcta gaagaatcaa 420 attgaatett ttaettaeet ettgeaaaaa aaaaaaaaat aagneanaaa annnataaaa 480 aaaaaaacnc gagagtactt ctaaagcggc cgcgggccna tcgattttcc acccgggtgg 540 ggtaccaggt aagtgtccca attcgcccta taggggagtc gtattacaat tcacggggcc 600 gtcgttttta aaacgtcntg acgggggaaa accctggngt taccaactta atcccccttg 660 caacaaatnc ccc 673

<210> 290 <211> 573 <212> DNA

<213> Homo Sapiens

<400> 290

gcaagaggta agtaaaagat tcaatttgat tcttctanag gggggaaaaa ggagttgaaa 60 gtaggtcttc attttgcagt catcatctgt acgaattett canagttgac ttgtccgtct 120 ccatcaatat ctgcttcnct gatcatttca tctacttctt catctgttag tttttcnccn 180 aagtttgtca tgacgtgacg tagttctgct gcactgatat aaccattgcc atccttgtca 240 aagactegga atgeeteacg gatttettet teactatetg tatetttean ttttenagee 300 atcatagtca aaaattcggg gaantcaatg gngccattac catcagcatc cacttcattg 360 atcatatect gnaatteaan ettetgttgg gttntgaece antgaeenca nggaeaagtt 420 ccaagttccc tttggttgtg aagggtgcca nctcgtgccc gaattccttt gggntccnac 480 gangggtena accetgeana ggngcegega ancetecaan ettttggtte ecetttanat 540 ngagggttaa atttegaact ttggnttttt tcc 573

<210> 291 <211> 819

<212> DNA

<213> Homo Sapiens

<400> 291

aaagaagaac	tatttattat	tagagaaagt	ccagagtcca	gaaaaagaag	gctgaatcca	60
gagtggaaag	acagatacaa	tgccctagga	gggtgcaggg	tcaagaggaa	gaggggagcc	120
cacgtgtcga	ggcagcaagt	ctaggcggca	gtggcaaagc	ctactctgtt	gttgcccaag	180
					gggctggccg	240
	acaggtaggt					300
atataggagg	aaggtggcag	agggaactcc	acaccattga	tgatgaaggt	caagetggge	360
					ctgggcccct	420
gtggcctgca	gaagagcact	catgtactgc	tggggcacag	tgagcagaga	ggtgcctgtg	480
tccacgatgg	cctggcaacc	ctcagaacac	cagccggagg	cctggccgcc	gatgaggaac	540
	caatctgcca					600
gtgtacangc	tgctatccac	acccccaaag	gacaaccgct	cccccgctqq	gagecetget	660
ggttgctgan						720
gcatactgtg						780
tcaaactgcc						819

<210> 292 <211> 664 <212> DNA

<213> Homo Sapiens

<400> 292

```
ctegegeteg egetggtgge ggtegeetgg gteegegeeg aggaagaget aaggageaaa
                                                                       60
tecaagatet gtgeeaatgt gttttgtgga geeggeeggg aatgtgeagt cacagagaaa
                                                                      120
ggggaaccca cctgtctctg cattgagcaa tgcaaacctc acaagaggcc tgtgtgtggc
                                                                      180
agtaatggca agacctacct caaccactgt gaactgcatc gagatgcctg cctcactgga
                                                                      240
tecaaaatee aggttgatta egatggacae tgeaaagaga agaaateegt aagteeatet
                                                                      300
gecageccag ttgtttgeta tcagtccaac cgtgatgage tccgacgtcg catcatccaa
                                                                      360
tggctggaan ctgagatcat tccagatggc tggttctcta aaggcagcaa ctacagtgaa
                                                                      420
atcctagaca agtattttaa agaactttga taatggtgat tctcgcctgg actccaagtg
                                                                      480
aatteetgaa gtttgtggga acangaatga aactgeeate aatattacaa egttteeagn
                                                                      540
accaagggag aacaacaagt ttgcctaang ggacteeggt ngttgatgee teteaatttg
                                                                      600
aactggtctg gatgaaaaat gcctgattgg gnaattnaag cttcccaant agtttcncca
                                                                      660
aatq
                                                                      664
```

<210> 293

<211> 719 <212> DNA

<213> Homo Sapiens

<400> 293

cactttaatt	tctttattca	tcaatagtat	ccgaaaagga	agaatcagga	gttacaaaaa	60
caagttaaat	gcaatatana	agcctactaa	atacaaatac	aagttcacaa	acacatatge	120
aacagaaact	tgtttanatt	gtttcttgaa	gtttgactac	ttaaaaacat	aggtgtaaag	180
		cacgtgggct				240
aaaactgata	tagtccaaag	tcacggcatg	tgggaatgtt	tccatggaca	ctggatetta	300
		aaaactacac				360
ctaagcccta	tqcttttaqa	gggctgaagg	aaccaaacct.	agtttaatcc	tatttattta	420
		aagactcccc				480
			agaccaggee	acceageage	cccacgaac	480
ggtcctcaga	tcatgtgatt	ctacggcata	nacgacagct	gccctattta	cacagaaqct	540
gcagaactca	agaagaatgt	ggatttgctc	ttggganttc	aatgttgcag	ggtanantaa	600
tcttgggatg	ataaccatgt	tctaaatgac	tagtgaanaa	acctgtggtt	tettaettt	660
aacaaattgg	tgtactcttg	cccctcccat	aatqtccaaq	ggctgggtaa	aacctttca	719

<210> 294 <211> 762 <212> DNA <213> Homo Sapiens

<400> 294

```
agctaaggag caaatccaag atctgtgcca atgtgttttg tggagccggc cgggaatgtg
                                                                       60
cagtcacaga gaaaggggaa cccacctgtc tctgcattga gcaatgcaaa cctcacaaga
                                                                      120
ggcctgtgtg tggcagtaat ggcaagacet acctcaacca ctgtgaactg catcgagatg
cctgcctcac tggatccaaa atccaggttg attacgatgg acactgcaaa gagaagaaat
                                                                      240
cogtaagtcc atctgccagc ccagttgttt gctatcagtc caaccgtgat gagctccgac
                                                                      300
gtcgcatcat ccagtggctg gaagctgaga tcattccaga tggctggttc tctaaaqqca
                                                                      360
gcaactacag tgaaatccta gacaagtatt ttaagaactt tgataatggt gattctcgcc
                                                                      420
tggactccag tgaattcctg aagtttgtgg aacagaatga aactgccatc aatattacaa
                                                                      480
cgtatccaga ccaggagaac aacaaagttg cttaggggac tctgtgttga tgccctcatt
                                                                      540
gaactgtctg gatgaaaatg ctgattggna actcagcttc caagagtttc tcaaagtgcc
                                                                      500
ctcaaaccca tctttcaacc ctcctgagaa agaagtgtgc cctgngaggg attaaacgta
                                                                      660
atgcagatgg agnetgagae enaaggtgga congttnace geetgtgtee ggtgeeeggt
                                                                      720
ggaaattggg tenggtneag ceatgaacet gttacqqqaa aq
                                                                      762
```

<210> 295

<211> 708 <212> DNA

<213> Homo Sapiens

<400> 295

```
cactttaatt totttattoa toaatagtat oogaaaagga agaatcagga gttacaaaaa
                                                                       60
caagttaaat gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc
                                                                      120
aacagaaact tgtttanatt gtttcttgaa gtttgactac ttaaaaaacat aggtgtaaag
                                                                      180
gaaagacatt cagactggte cacgtggget tgttagcagg cagaggaacc ctgctttcca
                                                                      240
aaaactgata tagtccagag tcacggcatg tgggaatgtt tccatggaca ctggatctta
                                                                      300
acagatgeta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg
                                                                      360
ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg
                                                                      420
ctccatgcaa aactttatgg aagactcccc agactaggct atttagcagc ttccatgaat
                                                                      480
ggtcctcaga tcatgtgatt ctacggcata gacgacagct gccctattta cacagaagct
                                                                      540
gcagaactca agaggaatgt ggatttgctc ttgggagttc aatgttgcag ggtaaaagta
                                                                      500
gtcctggatg ataaccatgt tccaaatgac taagtgaaga gacactgtgg gttcctgcct
                                                                      560
tttaacaaaa tgggggtact cctgcccctc ctccccanaa atgtccaa
                                                                      708
```

<210> 296

<211> 652

<212> DNA

<213> Homo Sapiens

<400> 296

```
cactttaatt totttattoa toaatagtat oogaaaagga agaatcagga gttacaaaaa
                                                                       60
caagttaaat gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc
                                                                      120
aacagaaact tgtttanatt gtttcttgaa gtttgactac ttaaaaacat aggtgtaaag
                                                                      180
gaaagacatt cagactggtc cacgtgggct tgttagcagg cagaggaacc ctgctttcca
                                                                      240
aaaactgata tagtccagag tcacggcatg tgggaatgtt tccatggaca ctggatctta
                                                                      300
acagatgcta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg
                                                                      360
ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg
                                                                      420
ctccatgcaa aactttatgg aagactcccc aagactaggc tatttagcag cttccatgaa
                                                                      480
tggtcctcag atcaagtgat tctacggnat anacgacaag ctgccctatt tacacagaag
                                                                      540
ctgcangaac tcaagaggga atgtgggatt gcccctgggg agttcaatgg ttgcangggt
                                                                      500
```

```
aaaagttant cttgggntga ataaccaggt ttctaaaatg accaaattga aa
                                                                      652
      <210> 297
      <211> 879
      <212> DNA
      <213> Homo Sapiens
      <400> 297
cactttaatt totttattoa toaatagtat oogaaaagga agaatcagga gttacaaaaa
                                                                       60
caagttaaat gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc
                                                                      120
aacagaaact tgtttagatt gtttcttgaa gtttgactac ttaaaaacat aggtgtaaag
                                                                      180
gaaagacatt cagactggtc cacgtgggct tgttagcagg cagaggaacc ctgctttcca
                                                                      240
aaaactgata tagtccagag tcacggcatg tgggaatgtt tccatggaca ctggatctta
                                                                      300
acagatgeta tagtgtttac aaanctacac acacagagaa agcccaagga agcctgcagg
                                                                      360
ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgtttg
                                                                      420
ctccatgcaa aactttatgg aagactcccc agactaggct atttagcagc ttccatgaat
                                                                      480
ggtcctcaga tcatgtgatt ctacggcata gacgacagct gccctattta cacagaaqct
                                                                      540
gcagaactca agaggaatgt ggatttgctc ttgggagttc aatgttgcag ggtagaagta
                                                                      600
gteetggatg ataaccatgt teenaaatga etagtgaaga gacactgtgg ttteetgeet
                                                                      660
ttaacaaant ggtgtactcc ttgccctcct ccaatantgt ccaaagggct ggtaaaaacc
                                                                      720
etttqattaa aggegtgetg eetgttgagt teeccaangg nacttgggae anggganeeg
                                                                      780
catttcaaga ccggaacaaa ttgggagttt tgaaaaaagt ttttaaatng ggaatgggtt
                                                                      840
acataaaaan gettgaaatg getaaaacaa aggngggaa
                                                                      879
     <210> 298
     <211> 697
     <212> DNA
     <213> Homo Sapiens
      <400> 298
aaagaatcgg atatgaaggt gccaactgta agtttgaaag tatctgaaag tgtaattgat
                                                                       60
gtgaaaacaa ctatggaaag tatatctaat acgtctacgc agtctctcac agcagaaaca
                                                                      120
aaggacatag ctttggaacc taaggaacaa aaacatgaag acaggcagag caatacacct
                                                                      180
teteeteetg ttagtacett tteateaggt aettetacea ceagtgatat tgaagtttta
                                                                      240
gatcatgaaa gtgtaataag tgagagctca gcgagctcga gacaagagac tacagattca
                                                                      300
aaatcaagtc ttcacttgat gcagacatct tttcagcttc tctctgcatc tgcttgtcct
                                                                      360
gaatataatc gtttagatga tttccaaaaa ctcactgaga gttgctgttc atctgatgct
                                                                      420
tttgaaagaa tagactcatt tagtgtacag tcattagata gccggagtgt aagtgaaatc
                                                                      480
aattcaagat gatgaattgt caggcaaggg gatatgcttt agtgcctatt ataagttaat
                                                                      540
tetteaacte caaaagteta aaacagttga atetgeegaa ggaaaatetg aagaagtaaa
                                                                      600
tgaaacatta agttatacca ctgaggaagc agaaatggga agaaaagtgg gcgaaagtgg
                                                                      660
caactccccg gttaacngng aaaangcctg gatatcc
                                                                      697
      <210> 299
      <211> 510
      <212> DNA
      <213> Homo Sapiens
      <400> 299
aaanaatnaa ttatgttaan aactttatta ttttcnantc cttttaaang gntgtnaaat
                                                                       60
aatacttcnt ccaaatcntt taaatgttnt naangccntt gcnaaatcct tataaataaa
                                                                      120
ttttcnccct tatccaancn catcnanaaa acattgaata tgttcaggtt tcncnggann
                                                                      180
ggtnccnaaa ggnnccnent tttatacnga cttaattgtn aaagcngggt gaaataaatt
                                                                      240
ttccnatcna aattttttt aagtttaaat cnttcccncn ttaaatttcn nanagtgtcc
                                                                      300
```

360

gtgtnactcc tacttttaaa ggaaaaaaat tantttaaaa tttaatancc cccgatttaa

taatttttta ctttaacnen taatgttent ttteetgaac nntaatta	an aaatgttgaa	420
attttaaatg tnaaanantc caantttccg tntgttaaca ttacncct	cc aatgttcnta	480
atatatntnt taaccontno caattatnga		510
<210> 300		
<211> 625		
<212> DNA		
<213> Homo Sapiens		
<400> 300		
attagatago oggagtgtaa gtgaaatcaa ttoagatgat gaattgto	ag gcaagggata	60
tgctttagtg cctattatag ttaattcttc aactccaaag tctaaaac	ag ttgaatctgc	120
tgaaggaaaa tctgaagaag taaatgaaac attagttata cccactga	gg aagcagaaat	180
ggaagaaagt ggacgaagtg caactcctgt taactgtgaa cagcctga	ta tcttggtttc	240
ttctacacca ataaatgaag gacagactgt gttagacaag gtggctga	nc agtgtgaacc	300
tgctgaaagt cagccanaan cactttctga caaggaanat gtttgcaa	ta caqttqaatt	360
totgaatgaa aaagonggaa aaaagggang otcagttatt atototta	gt aaggaaaaag	420
cacttctagg aagaagcttt ttgatacctg aananatgaa atgttcac	ag tngaaaggaa	480
naanngcagt ancattteen teettgaaan gattnngttt actcaaag	a attnonnnaa	540
ncengtanta gaaaagttte aaacetaagn ceggnaaaag aggaagag	at gootggoota	600
aaaaaaggga aatccacnga ccatt	5 -55	625
		0.00
<210> 301		
<211> 792		
<212> DNA		
<213> Homo Sapiens		
<400> 301		
aaaaantaaa ttatnttaaa aactttatta tttncnatnc attttata	gg gtantaaaat	60
aatactnctn caaaatcatt taaatnttat tgatgccatt gcaaaatc	at tataaataaa	120
tttnctccat tatccaatca catctaaata acattgaata tntacagg	tt netetggata	1.80
ggtaccaaaa ggtaccacnt tttatacaaa cttaattgtg aaanctgg	rt gaaataaatt	240
tncaaatcaa aattttttt aantttaaat catncactct ttaaattt	ca aacagtgtca	300
gtgtgacnct tacttttaaa ggaaaaaaat tagtttaaaa tttaatan	cc acanatttaa	360
taatttttta etttaacact taatgtacat tttcatganc agtaatta	aa atatnttgaa	420
attttaaatn tgaaaaattt caaagtttca gtatnttaac attacnct	tc aaatgttctt	480
aatatatata taaacactta caaattataa atacaactag ttgtntnt	ct acaatacata	540
tntgaacacc attettette tetagecatn tttatntgan gataaagt.	aa taaatetete	600
tgctattcaa gggaaaaaaa atgaatgctt taaaaaataa atctttaa	aa aataattcca	660
aaaataaagt tcaaatattg cacaaaaata atttaactgt aaatatta	ct nontagtota	720
aacaatttta aaaaaatttt acactctaca ntaaatccnc ttctnatt	ct ttaaaaaaa	780
tatgggaaat cc		792
		132
<210> 302		
<211> 738		
<212> DNA		
<213> Homo Sapiens		
•		
<400> 302		
aaagagtaaa ttatgttaag aactttatta ttttcgattc attttata	or ottootabest	60
aatacttctt caaaatcatt taaatgttat tgatgccatt gcaaaatc	op prayraadat	120
ttttctccat tatccaatca catctagata acattgaata tgtacagg	tt tanataarta	
ggtaccaaaa ggtaccacat tttatacaga cttaattgtg aaagctgg	rt gaaataaar	180
ttcagatcaa aattttttt aagtttaaat cattcactct ttaaattt	y yaaataaatt	240
gtgtgactct tacttttaaa ggaaaaaaat tagtttaaaa tttaatag	a yacagtgtca	300
5 5 S S S S S S S S S S S S S S S S S S	acayatttaa	360

```
taatttttta ctttaacact taatgtacat tttcatgagc agtaattaag atatgttgaa
                                                                       420
attttaaatg tgaaagattt caaaggtttc agtatgttaa cattactctt caaatgttct
                                                                      480
taatatata ataaacactt acaaattata gatacaacta gttgtatatc tacaatacat
                                                                      540
atatgaacac cattettett cecenageca tatttatatg agggataaag taataaatet
                                                                      600
ctggtgctat tcaaggnaaa aaaatggaat gccttaaaaa aataaaatcc ttaaaqaata
                                                                      660
ggttcaaaaa ataaagttca aaatantngc ccaaaaataa attaacnngg taatattaac
                                                                      720
tacataaggg taaaacaa
                                                                      738
      <210> 303
      <211> 635
      <212> DNA
      <213> Homo Sapiens
      <400> 303
gaacggccga gggtaacatc ccgggctcgc gggaggctgt cggggtaatg gccacacgct
                                                                       60
gacagaacca gccgagtgga aaaggggagc gaagccgttc ctctgcaccc ttccccaggc
                                                                      120
etgaggeett eeegettggt getgeegeeg ceaetgeegg etgaggaggg gegatgagtt
                                                                      180
ggttcaacgc ctcccagctc tccagcttcg ctaagcaggc cctgtcccag gcccagaagt
                                                                      240
ctattgacag ggttctggac atccaggaag aggagccgag catctgggcc gagaccattc
                                                                      300
cgtatggaga gccgggaata agttcccctg tcagtggagg atgggatact tcaacctggg
                                                                      360
ggttgaaatc aaacactgaa cctcagagtc caccaatagc ctctcctaaa gcaatcacaa
                                                                      420
agccagtten gaggactgtg gtcgatgaat ctgaaaattt cttcagtgcc tttctctcqc
                                                                      480
caactgatgt ccagaccatt cagaagagtc cagtggtatc aaaacctcca ncataatcac
                                                                      540
aacnaccang nagaangaan tgaaaancan cttacatgaa tccttgcaca ttggncaant
                                                                      600
caagaaactt cctgaaacaa ctgaaatcac aaagt
                                                                      635
     <210> 304
     <211> 847
      <212> DNA
      <213> Homo Sapiens
      <400> 304
gagacggagt ctttctctgt cacccatgct ggagtgcagt ggcacaatct tggctcattg
                                                                       60
taacetecae eteccaggtt caageaatge teetgeetea geeteeegag tagetaggat
                                                                      120
tacaggegea caccaccacg ccaggetaat ttttgtattt ttagtagaga tggggtttca
                                                                      180
ccaaactget ggccatgetg gtettgaact cetgacatca ggtgatatge eegeettgge
                                                                      240
ctcccaaagt gctgggatta caggcatgag ccacagcacc tggccgtaaa tgagagtttt
                                                                      300
tatgtgcaag taaaggcagt taaataactt tcagtaataa aatgcatcac aatatttcac
                                                                      360
aggtttaaaa cacaacctgg ttaccttttt gaataaaata acatttggaa gaaggcatag
                                                                      420
ctacttttaa aagctattct atgctttcct tgtgtttgaa atttcaagaa aaaataaaaat
                                                                      480
gataaatcac aaaattaaaa atgccaaatt caagttaatt cctataattc ttccattttq
                                                                      540
ttatgaatat tctgtaatat caaacattca tttttaatgt gctaaaaata tgggtttaca
                                                                      600
aaatatgaac aggtaatttt taaaagagta aattatgtta aagaacttta ataantttcg
                                                                      660
attcatttta tagggtanta aaataatact tottcaaaat caattaaatg ttattgaatg
                                                                      720
ccatttgcaa aatcattata aataaatttt cncaattatc caatcacaat tctagataac
                                                                      780
attgaataag tncaaggttt ccccgggata ngttccaaaa nggtnccaca attttatnca
                                                                      840
gacctaa
                                                                      847
      <210> 305
      <211> 767
      <212> DNA
      <213> Homo Sapiens
      <400> 305
```

cccccttcgt ctcagctgtg cgggaacggc cgagggtaac atcccgggct cgcgggaggc

```
tgtcggggta atggccacac gctgacagaa ccagccgagt ggaaaagggg agcgaagccg
                                                                       120
ttcctctgca cccttcccca ggcctgaggc cttcccgctt ggtgctgccg ccgccactgc
                                                                       180
cggctgagga ggggcgatga gttggttcaa cgcctcccag ctctccagct tcgctaagca
                                                                       240
ggecetgtee caggeccaga agtetattga cagggttetg gacatecagg aagaggagee
                                                                      300
gagcatctgg gccgagacca ttccgtatgg agagccggga ataagttccc ctgtcaqtqq
                                                                       360
aggatgggat acttcaacct gggggttgaa atcaaacact gaacctcaga gtccaccaat
                                                                      420
aqceteteet aaagcaatca caaagceagt teggaggaet gtggtegatg aatetgaaaa
                                                                      480
tttetteagt geetttetet egeeaactga tgteeagace atteagaaga gteeagtggt
                                                                      540
atcaaaacct ccaacaaaat cacaacgacc aagaaagaag aagtgaaaag caacttacat
                                                                      600
gaatcccttg cacattggcc aatcaagaac tcctgaaaca actgaatcac aagtaaaaag
                                                                      660
actocctcct tgtgtgtttc aaggggaaaa ctctgggcaa caaggtactt catcacctaa
                                                                      720
aactgaaagg naaacaacga agaaaactgt ttaatnaaag aatccgg
                                                                      767
      <210> 306
      <211> 1659
      <212> DNA
      <213> Homo Sapiens
      <400> 306
cccccttcgt ctcagctgtg cgggaacggc cgagggtaac atcccgggct cgcgggaggc
tgtcggggta atggccacac gctgacagaa ccagccgagt ggaaaagggg agcgaagccg
                                                                      1.20
tteetetgea ecetteeeea ggeetgagge etteeegett ggtgetgeeg eegeeaetge
                                                                      180
eggetgagga ggggegatga gttggttcaa egeeteecag etetecaget tegetaagea
                                                                      240
ggccctgtcc caggcccaga agtctattga cagggttctg gacatccagg aagaggagcc
                                                                      300
gagcatetgg geogagaeca tteegtatgg agageeggga ataagtteee etgteagtgg
                                                                      360
aggatgggat acttcaacct gggggttgaa atcaaacact gaacctcaga gtccaccaat
                                                                      420
agecteteet aaageaatea caaageeagt teggaggaet gtggtegatg aatetgaaaa
tttetteagt geetttetet egeeaactga tgteeagace atteagaaga gteeagtggt
                                                                      540
atcaaaaact ccaacaaaat cacaacgacc aagaaagaag aagtgaaaag caacttacat
                                                                      600
gaatcccttg cacattggcc aatcaagaac tcctgaaaca actgaatcac aagtaaaaag
                                                                      660
actocctcct tgtgtgtttc aaggggaaaa ctctgggcaa caaggtactt catcacctaa
aactgaaagg naaacaacga agaaaactgt ttaataaaga atcggatatg aaggtgccaa
                                                                      780
ctgtaagttt gaaagtatct gaaagtgtaa ttgatgtgaa aacaactatg gaaagtatat
                                                                      840
ctaatacgtc tacgcagtct ctcacagcag aaacaaagga catagctttg gaacctaagg
                                                                      900
aacaaaaaca tgaagacagg cagagcaata caccttctcc tcctgttagt accttttcat
caggtacttc taccaccagt gatattgaag ttttagatca tgaaagtgta ataagtgaga
                                                                     1020
gctcagcgag ctcgagacaa gagactacag attcaaaatc aagtcttcac ttgatgcaga
                                                                     1080
catcittica gcitcicitci gcatcigcit giccigaata taatcgitta gatgatticc
                                                                     1140
aaaaactcac tgagagttgc tgttcatctg atgcttttga aagaatagac tcatttagtg
                                                                     1200
tacagtcatt agatageegg agtgtaagtg aaatcaatte agatgatgaa ttgteaggea
                                                                     1260
agggatatgc tttagtgcct attatagtta attcttcaac tccaaagtct aaaacagttg
                                                                     1320
aatetgetga aggaaaatet gaagaagtaa atgaaacatt agttatacce actgaggaag
                                                                     1380
cagaaatgga agaaagtgga cgaagtgcaa ctcctgttaa ctgtgaacag cctgatatct
                                                                     1440
tgqtttcttc tacaccaata aatgaaggac agactgtgtt agacaaggtg gctgancagt
                                                                     1500
gtgaacctgc tgaaagtcag ccanaancac tttctgacaa ggaanatgtt tgcaatacag
                                                                     1560
ttgaatttet gaatgaaaaa genggaaaaa agggangete agttattate tettaqtaag
                                                                     1620
gaaaaagcac ttctaggaag aagctttttg atacctgaa
                                                                     1659
      <210> 307
      <211> 831
      <212> DNA
      <213> Homo Sapiens
```

<400> 307

ctaagcattc catattggaa gaagagattt ctacacatga aaaaaatgcc tttgtttagt

```
aaatcacaca aaaatccagc agaaattgtg aaaatcctga aagacaattt ggccattttg
                                                                      120
gaaaagcaag acaaaaagac agacaaggct tcagaagaag tgtctaaatc actgcaagca
atgaaagaaa ttotgtgtgg tacaaacgag aaagaacccc caacagaagc agtggctcag
                                                                      240
ctagcacaag aactetacag cagtggcetg ctagtgacac tgatagetga cetgcagetg
                                                                      300
atagactttg agggaaaaaa agatgtgacc cagatattta acaacatctt gagaagacag
                                                                      360
ataggeacte ggagtectae tgtggagtat attagtgete atceteatat cetgtttatg
                                                                      420
ctcctcaaag gatatgaagc cccacagatt gccttacgtt gtgggattat gctgagagaa
                                                                      480
tqtattcgac atgaaccact tgccaaaatc atcctctttt ctaatcaatt cagagatttc
                                                                      540
tttaagtacg tggagttgtc aacatttgat attgcttcag atgcctttgc tactttcaaq
                                                                      600
ggatttacta accagacata aagtgttggt agcaagactt cttagaacaa aattacgaca
                                                                      660
ctanttttga agactatgag aaattgcttc agtctgagaa attatgttac caagagacag
                                                                      720
tccttaaagc ctgctaaggg aactgattct ggaccgtcan aactttgcca tcaangcaaa
                                                                      780
agtttatcaa caagconggg gaaaccggaa acncaaggag gaacctcctt c
                                                                      831
      <210> 308
      <211> 833
      <212> DNA
      <213> Homo Sapiens
      <400> 308
ccattcaaat gtttatactc catctaccca gaacaattac agcagaaaaa ataggcacct
                                                                      60
ccaaagtett cccaagaatg atgactttet gaaatgacac actgtacaaa ctggacaaat
                                                                      120
gagacgactg actgtgacag gggccgggga gctcttcaag gggccgtttt cttcaagtct
                                                                      180
eggatetgtt taateaagta gttetteteg teagegaaet geteateate egteetttet
                                                                      240
ttttggaagc tgctcagaaa ctcaatgagt ttgggctgat tttttaacag gatctccaca
                                                                      300
ataggetgtg ttttgtgagg actggecaca aacacettaa aaacatgaaa ggettcaaac
                                                                      360
tggatgttgg gacttttatc ccgaaggagg ttcatcatga gtttcaggtt ctccggcttq
                                                                      420
ctgatatact ttgtcatgat ggcaaagttg tgacggtcca ggatcagctc ccctagcagc
tttaaagact gtctcttagt aacataattc tcagactgaa gcaatttctc atagtcttca
                                                                      540
aaaatagtgt cgtaattttg ttctaagaag tctgctacca acactttaag gtcnggttag
                                                                      600
taaatccttg aaagtagcaa aggcatctga agcaatatca aatgttgaca actccacgtt
                                                                      660
acttaaagaa atctctgaat tgattagaaa aagaggatga ntttgggcaa ntgggtcaag
                                                                      720
tegaatanat teeteteaag cataaaceca caaacgttaa ggnaaacegg tgggggette
                                                                      780
aaaanccntt gagggagcat aaancangga tattagggat nagcacccaa ata
                                                                      833
     <210> 309
      <211> 1320
      <212> DNA
      <213> Homo Sapiens
      <400> 309
gcatcaccac catccacgag gatgaggtgg ccaagaccca gaaggcagag ggaggtggcc
                                                                      60
geotgeagge tetgegttee etgtetggea ceccaaagte catgacetee etatececae
                                                                      120
gtteetetet eteeteeee teeccacet gtteecetet catggetgac ceceteetgg
                                                                      180
ctggtgatgc cttcctcaac tccttggagt ttgaagaccc ggagctgagt gccactcttt
                                                                      240
gtgaactgag cettggtaac agegeecagg aaagataceg getggaggaa ceaggaacgg
                                                                      300
agggcaagca gctgggccaa gctgtgaata cggcccaggg gtgtggcctg aaagtggcct
                                                                      360
gtgtctcagc cgccgtatcg gacgagtcag tggctggaga cagtggtgtg tacgaggctt
                                                                     420
cogtgcagag actgggtgct tcagaagctg ctgcatttga cagtgacgaa tcggaagcag
                                                                     480
tgggtgcgac ccgaattcag attgccctga agtatgatga gaagaataag caatttqcaa
                                                                      540
tattaatcat ccagctgagt aacctttctg ctctgttgca gcaacaagac cagaaagtga
                                                                      500
atateegegt ggetgteett cettgetetg aaageacaac etgeetgtte eggaceegge
                                                                      560
ctctggacgc ctcaagacac tctagtgttc aatgaggtgt tctgggtatc catgtcctat
                                                                     720
ccaagccctt caccaagaag accttaagag tcgatgtctg taccaccgac aggagccatc
                                                                     780
```

tgggaaaagt geetgggagg egeccaaatn ageetggegg aggtetgeeg gtetggggga

```
aaagtcgact cgcttggtac aactttctca gntacaaaat acttgaagaa acagagcagg
                                                                      900
gageteaage eagtgggagt eatggeeett getteaggge ntgeeageae ggaegetgtg
tettgetetg ttggaacaga cagcagtgga gttggagaag aggcaggagg gcaggagcag
                                                                     1020
cacacagaca ctggaagaca gctggtgagt gagcccgccc ttgggcccca ggagctgccc
                                                                     1080
tqcctggacc tagqcccagc aatgagatcc cccaatgcca gtgcaactaa gagaaqqgtt
                                                                     1140
ccactgggaa ggctgagaac ccctctcctc atgggttctc tacaggcaaa aaggcaatgt
                                                                     1200
aacctagtac gatggttccc agaattcctt tcgaatttgc catttcgttt cccatgaatc
                                                                     1260
acctatgcta gttcacacct aatgttattc tttatcttga tatagtgaca tttattttgc
      <210> 310
      <211> 1030
      <212> DNA
      <213> Homo Sapiens
      <400> 310
aacatttctg tgatcaacat tgcttactgc gtttctactg tcaacaaaat gagcccaaca
                                                                       60
tgacaactca gaaaggacct gaaaacttac attatgatca gggttgtcag acatctcgaa
                                                                      120
ccaaaatgac aggttcagca ccacccctt ctccaacacc taacaaagag atgaagaaca
                                                                      180
aagcagttct ttgcaaacct ttaacaatga caaaagctac ttactgtaaa cctcacatgc
                                                                      240
agaccaaatc ttgtcagaca gatgatactt ggaggacaga atatgttcca gtgcctatcc
                                                                      300
ctgtgcctgt gtatatccca gttcctatgc acatgtacag tcagaatatt cctgttccta
ctacagttcc tgttcctgtg ccagttcctg tttttctgcc tgctccattg gacagcagtg
                                                                      420
agaagattcc tgcagcaatt gaggagctaa aaagcaaggt ttcttcagat gctcttgata
                                                                      480
cagagttgct tacaatgacg gatatgatga gtgaagacga ggggaaaaca gagacaacca
                                                                      540
acatcaacag tgtaattatt gaaacagata taattggttc agaccttttg aagaactctg
                                                                      600
acceagagac acagtecage atgeetgatg taccatatga accaagattt ggatategaa
                                                                      660
atagattttc ccagagctgc tgaggagctt gatatggaaa atgaattttt attaccacct
                                                                      720
gtttttggcg aagaatatga ggaacagccc aagacctcga tctaaaaaaa aagggagcca
                                                                      780
agagaaange tgtatcaagg ataccaagte teatgatgat aagtetgaca atttcagaat
                                                                      840
gcagenttee tttcaaatta taegtatggg egtaaatgca tgggnaacae egggtcaaaa
                                                                      900
actaagnnac ttggatgaaa gatcntccgg gnaattagaa tgagttaaaa tccttccaaa
                                                                      960
tecantnaag tttaaaagag ggtntaatee ceteaaaace anagetggng cettaacaag
                                                                     1020
ggggttaacc
                                                                     1030
     <210> 311
      <211> 546
      <212> DNA
      <213> Homo Sapiens
      <400> 311
gtttctgttt tcagaagaat tgggaaaact tctgtgaaag aagaatgcag aaacaaagaa
                                                                       60
atatgaagtc ttgggagtat actgattaaa aagcacacat tgggagtgat agtaagaaga
                                                                      120
gctaaaataa aaagcacaga aggaaaaaat aattgatttg tacataagct aaattataat
                                                                      180
tcctttaaaa ttgtttataa caagatggaa tacagaatga cgattagatt tataacgtqt
                                                                      240
gtttatatga atatgttgtt aacagtgaga tttctgatat ggtataacaa agtatatgat
                                                                      300
tggaggacct gcaaaatgta tactcgggtt gtttttcttt ttaaaaaatat tgtnaaacag
                                                                      360
gcaagtgagg cttaacagca ttatggttca ttacngggtt tgggntatat acctttttca
                                                                      420
gettetgtna tgagcaagtt gtgttttcaa teeceacttt caatgtetat gggaagggeg
                                                                      480
enttttgetn tgttttgttt tgtetttaaa nenttttnaa aenggggaca canatggang
                                                                      540
ccqqcc
                                                                      546
```

<210> 312

<211> 518

<212> DNA

<213> Homo Sapiens

```
<400> 312
aaaattatta ntntaaaagg ggaaataggt nggattnccn tnttnagggc aataattntq
                                                                       60
gggaggaatg gggtggggct nacccctgna acccatnata aacctattct nctnaggqtq
                                                                      120
ctqqqaaana attqqggtct ggaataaanc tncaaatggg tcnccngctt cactaaaacc
                                                                      180
ttggcaacta aggeteattt ttecaaaggg gttnetnang tennetceet ntnaaatent
                                                                      240
tttattatnc cagggtggct gttgctaang cttnggtggg aaancangaa nttnctgctn
                                                                      300
ctnetgetge tgttgetget gggcantnea agggaaaace cccccgacaa actgggataa
                                                                      360
ngtgacctgn ttgcncacnt ctngggccct attnccntac ctgncctgna aatncttccc
                                                                      420
netetgeece etttaetnnt gecaannett teeceeegg ttaggataaa aatteeeetn
                                                                      480
aacctccnac ctttggttan cgggggtccc ctncccc
                                                                      518
      <210> 313
      <211> 660
      <212> DNA
      <213> Homo Sapiens
      <400> 313
gecaagetgt gaataeggee caggggtgtg geetgaaagt ggeetgtgte teageegeeg
                                                                       60
tateggaega gteagtgget ggagaeagtg gtgtgtaega ggetteegtg cagagaetgg
                                                                      120
gtgcttcaga agctgctgca tttgacagtg acgaatcgga agcagtgggt gcgacccgaa
                                                                      180
ttcagattgc cctgaagtat gatgagaaga ataagcaatt tgcaatatta atcatccagc
                                                                      240
tgagtaacct ttctgctctg ttgcagcaac aagaccagaa agtgaatatc cgcgtggctg
                                                                      300
tecttecttg etetgaaage acaacetgee tgtteeggae eeggeetetg gaegeeteaa
                                                                      360
gacactctag tgttcaatga ggtgttctgg gtatccatgt cctatccaag cccttcacca
                                                                      420
agaagacctt aagagtegat gtetgtacca cegacaggag ccatetggga aaagtqeetq
                                                                      480
ggaggegece aaatnageet ggeggaggte tgeeggtetg ggggaaaagt egactegetn
                                                                      540
gtacaacett etcagetaca aataettgaa gaaacaagae aangggaete aageeantgg
                                                                      600
gagtcatggg ccctggcctc angggctgcc aacaacgggc cccgtgttct ggccccgttt
                                                                      660
      <210> 314
     <211> 516
      <212> DNA
      <213> Homo Sapiens
      <400> 314
gaaaggccac tttattgatg gagataaaac tgaatggagt tccccacagc cctcccctca
                                                                       60
ctcatgttag tggcttnact gggcatctga gaccagcgtg gcctgtcacc cacatanact
                                                                      120
aggetgetta geccacecag cetateacae tgecegetee aegttgggea gecacataaa
                                                                      180
aacacgtcac agetcaanaa nateegtgga tgeacetetg aateeceee aatggttet
                                                                      240
gtgcattttt ttaatattgt acaaaatatg ttaactagga aaaattagct gtactqtqac
                                                                      300
aagtgcggga cgtcctatta ggattaccgt cccccaggca ttacttctta ttgcagtaag
                                                                      360
acctctaaaa ggtggagctg tncaaaccaa aaaaaatcta aacgatttta agaanagcag
                                                                      420
caactcaata ctgctttagt tcatttaaat tttctttccc aaaaatacac tcctaaatat
                                                                      480
acaaactata caatcttatt attttaatgc tgqttt
                                                                      516
      <210> 315
      <211> 677
      <212> DNA
      <213> Homo Sapiens
      <400> 315
tcagaatggc agattcagga gagagtttgt gccagaatag cattgaagaa cttgatggtg
                                                                       60
teettacate catatteaaa catgagatae catattatga gtteeagtet etteaaactg
                                                                      120
aaatttgttc tcaaaacaaa tatactcatt tcaaagaact tccaactctt ctccactgtg
                                                                      180
```

cagcaaaatt tggcttaaag aacctggcta ttcatttgct tcaatgttca ggagcaacct

```
gggcatctaa gatgaaaaat atggagggtt cagaccccac acatattgct gaaaggcatg
                                                                      300
gtcacaaaga actcaagaaa atcttcgaag acttttcaat ccaagaaatt gacataaata
                                                                      360
atgagcaaga aaatgattat gaagaggata ttgcctcatt ttccacatat attccttcca
                                                                      420
cacagaaccc agcatttcat catgaaagca ggaagacata cgggcaagag tgcaaatgga
                                                                      480
gctgaggcaa atgaaatgga aggggaaggn aaacagaatg ggntcaggca tggagaccaa
                                                                      540
acacagocca ctaaqaggtt ggcagtgaga gttctgaaag accagtatga tgacttgtan
                                                                      600
gtgttcaatc cctgggngct gattcaagaa aaataattcc acaagggtgc tattcntngt
                                                                      660
ttttacaaga cntcctt
                                                                      677
      <210> 316
      <211> 843
      <212> DNA
      <213> Homo Sapiens
      <400> 316
agctttaaac attcaattta tttgtggcat ttgtacatga aaattatatg acgataacat
                                                                       60
tgctttctat tctaagctag taaattgttt ctaagaaata atagattgat aaaattgcaa
                                                                      120
gtottaatac aaaggtaggt tatgaaaatg tatattaatt tgagatatag aaaagtttto
                                                                      180
aaataataat gttttcaggg ttatatgcaa atagacacta aataagacaa ggtttctgca
                                                                      240
aacatgatgt aacaataatg actggaactc tgaatgtgag aaattcagaa aatgaaccag
                                                                      300
ctacttaaaa agcaaaaatg tgctaagtaa atttgtattt tcatggttat tctaaggaga
                                                                      360
ggaggaataa tetgttgagg ttagtgeeet caagcagace ceataaettt getacacege
                                                                      420
atttaacttc tctgtgctgt tttcttttaa ttttcaaaat ggaaattagc tgtttcattg
                                                                      480
gtgaagtgca ttgtaaaatg agagaatttt caaataatgc aattactcta tggtattctg
                                                                      540
ttttaatagt aatataccca tatgaagcag gtataatgag aataaatttt gccaataaca
                                                                      600
aattetgaaa tetgaanttt gtttetgetg teatagtatg aattegettt aaagananca
                                                                      660
ggcaatccaa attcaacttg ctcacctgaa aacaaaatgt ccgtanatcg tgagttcata
                                                                      720
taataacctc cttaatgatc ttcctgcaca naaaccaaat tcttttcaac ttggggtcaa
                                                                      780
caagaaccta ttgctgaatt ttcatataaa actatttcct gttggcagtt tcctaccccc
                                                                      840
                                                                      843
     <210> 317
      <211> 835
      <212> DNA
      <213> Homo Sapiens
      <400> 317
acaagacacg cctgcgtagt ggtagtgccc tcctgcagtc ccagtctagt actgaggacc
                                                                       60
cgaaggatga gcctgeggag ctaaaaccag attctgagga cttatcctcc cagtcctcag
                                                                      120
cttcaaaggc atctcaggag gatgccaatg aaatcaagtc taaacgggat gaagaagaac
                                                                      180
gagaacgaga aaggagggag aaggagagg aacgagaaag agaacgggag aaggagaagg
                                                                      240
agagagaacg agagaagcag aagctaaaag agtcagaaaa agagagagat tctgctaagg
                                                                      300
ataaagagaa aggcaaacat gatgatggac ggaaaaagga agcagaaatt atcaaacaat
                                                                      360
tgaagattga actcaagaag gcacaggaga gccaaaagga gatgaaacta ttgctggata
                                                                      420
tgtaccgttc tgccccaaag gaacagagag acaaagttca gctgatggca gctgaqaaga
                                                                      480
agtotaaggo agagttggaa gatotaaggo aaagaotoaa ggatotggaa gataaagaga
                                                                      540
agaaagagaa caaagaaaat ggctgatgaa ggatgccttg aggaagatcc gggcagtgga
                                                                      600
ggqacaagat aqaataccta cagaagaagc taagccatgg gcaagcagga agaagaagca
                                                                      660
etectetetg aaatgggatg teacaaggee aageetttga agacatgeag gagcaaaaat
                                                                      720
atccgntttg attgcagcaa nttgccggga anaanggatg atgccaaatt ttcaaagccc
                                                                      780
aatgtcaaaa googttttca agttccaaat ccagnttcat naagnttgcc ttaaa
                                                                      835
```

<210> 318

<211> 582

<212> DNA

<213> Homo Sapiens

<400> 318

caaactgaat cctgctttaa ttcaagcttg nggagaacaa agtcctacag aaacattcca 60 nanaattttc nggaaaagag ggatcacaac aaccetgtaa aaaggagact ganagtaatt 120 canageteae caagttenen eegtateaaa ttteeanaat aeeeacaaga tttetteaee 180 anctcantcc tgactcaacc tcttcaatct ttanttcatt agaagacaaa gggtcanatt 240 atttaaaatt antcnantcc caagaaattt aaagacttga agtagtagag cattcaaaac 300 ttaaataact ttaacaagaa agccanctga tcttaacaag ttacncngcn antaaatggg 360 aaatagactg aatcanccta nacataattt cattagggnt gcaaaccacc cangggaaag 420 tagcacaatt ataccanttt gtaatccaca ttcacaagaa gtttgcnaca caaatgaaga 480 aaactttgng cccatagaca acttattttt taaaatatca ctccccaaaa gtagccatgt 540 ttccactttt ggtccccttt ccanatcaaa aataccaact tg 582

<210> 319

<211> 827

<212> DNA

<213> Homo Sapiens

<400> 319

gaagecatte gatgtteate agattggeea ttteagecat accttgtgtt tgatgttgga 60 gatggttcag aaagacggga taatgactca tatataaatg ttcaagaaat aaaactggtg 120 atggaaataa ttaagcttat taaagacaaa agaaaggatg ttagttttcg aaacattggc 180 ataataactc attacaaggc ccagaagacg atgattcaga aggatttgga caaagagttc 240 gatagaaaag gaccagcaga agtagacact gtggatgcat tccagggtcg gcagaaqqat 300 tgtgttattg ttacgtgtgt cagagcaaat agcatccaag gttcaattgg attcctggca 360 agtttgcaga gattgaatgt caccatcaca cgagccaagt acagcctctt catcctcgga 420 catttgagga ccctgatgga aaaccagcat tggaatcagc tgattcagga tgctcagaag 480 cgtggtgcca ttattaagac ctgtgacaaa aactatagac atgatgcagt gaagattctg 540 aaactcaagc ctgtgctgca gagaagtctc actcancete ctaccatage cccaaagggg 600 tccaaacccc aagggtggnt tgcccaagca ncaagctaga cagttggatt ttgccaaaqa 660 caatcctggt tgccggcttc tccaatacca aaacaaccct ccggactccc aagggaaaat 720 tacnectaac ggtttacett caaagggace etgaaaagac ceneetggtt caatgaccaa 780 cnttcanggg ncccacgaan tggctgaaaa agggatgggc aatttag 827

<210> 320 <211> 598

<212> DNA

<213> Homo Sapiens

<400> 320

aaattttaaa aggattttgt tatttgctat acaaatatac atttcaactt ttacaacatt 60 cactecagte tgacetectt gtetatagaa gactaagaga teaacattte cagtetetga 120 cttcaaggac attattacgg atacacaatg ccctctgaaa gcttttgcaa atgacagaaa 180 atactgaaga tgaccagagg ctcaggtgtt aaggatgcat tttccatgtt ttccaacagc 240 acacaaactc cttacaaaaa acaagcttat ctagatggtc ccacgagctg gtcatcttca 300 gtttacaata tgctgtggct gctggcccat gtcactgggc tttcctataa aagctttctt 360 ttettgggaa etgetgteet eetgeteeaa gtgteetett gteecaceta gagtteetee 420 tggtgtgatg ggtctcggaa ccacacttct cctgctcccc ttcactgaaa gccctggcct 480 ctctcctgtg acagagetec tcttccgggt catcacattt gctctgacac gtgggnagec 540 teggggaact gggcanetgg gaggnteegt ttttttttgg gaaggtttgt tggetqee 598

<210> 321

<211> 808

<212> DNA

<213> Homo Sapiens

<400> 321

gcatcaccac catccacgag gatgaggtgg ccaagaccca gaaggcagag ggaggtggcc geetgeagge tetgegttee etgtetggea eeccaaagte catgacetee etateccae 1.20 gttcctctct ctcctccccc tccccaccct gttcccctct catggctgac cccctcctgg 180 ctggtgatgc cttcctcaac tccttggagt ttgaagaccc ggagctgagt gccactcttt 240 gtgaactgag ccttggtaac agcgcccagg aaagataccg gctggaggaa ccaggaacgg 300 agggcaagca gctgggccaa gctgtgaata cggcccaggg gtgtggcctg aaagtggcct 360 gtgtctcagc cgccgtatcg gacgagtcag tggctggaga cagtggtgtg tacgaggett 420 ccgtgcagag actgggtgct tcagaagctg ctgcatttga cagtgacgaa tcggaagcag 480 tqqqtqcgac ccgaattcag attgccctga agtatgatga gaagaataag caatttgcaa 540 tattaatcat ccagctgagt aacctttctg ctctgttgca ncaacaaaga ccagaaagtg 600 aatateegeg tggetgteet teettgetet gaaaageaca aactgeetgt teegggaeee 660 gggctctgga cgcctcaaac actccaagtg ttcaatgaag gtgttctggg tatccatggt 720 ccctatccaa acccnttaac aagaaagacc tttaaanaag tccaatgtcc ngtnaccaac 780 cggacaaggg agccaatctt gggaaaaa 808

<210> 322 <211> 629

<212> DNA

<213> Homo Sapiens

<400> 322

agcaaaataa atgtcactat atcaagataa agaataacat taggtgtgaa ctagcatagg 60 tgattcatgg gaaacgaaat ggcaaattcg aaaggaattc tgggaaccat cgtactaggt 120 tacattgcct ttttgcctgt agagaaccca tgaggagagg ggttctcagc cttcccagtg 180 gaaccettet ettagttgca etggcattgg gggateteat tgetgggeet aggteeagge 240 agggcagete etggggecca agggeggget cacteaceag etgtetteea gtgtetgtgt 300 getgeteetg coetcetgee tettetecaa etccactget gtetgtteca acagageaag 360 acacagogto ogtgotggca ngccotgaag caagggcoat gactoccact ggottgagot 420 ccctgctctg tttcttcaag tattttgtan ctgagaaagt tgtaccaanc gaatcnacct 480 ctccccaaga ccgggaagac ctcccgccaa ggctgatttg gggcgcctcc caagcactct 540 tocaaaatgg ctcccgtccg ttgggacana catccnactt tttaangcct tccqqqqnaa 600 agggctgggn taaggacatt gggtncccc 629

<210> 323 <211> 798

<211> 798 <212> DNA

<213> Homo Sapiens

<400> 323 aacatttctg tgatcaacat tgcttactgc gtttctactg tcaacaaaat gagcccaaca 60 tgacaactca gaaaggacct gaaaacttac attatgatca gggttgtcag acatctcgaa 120 ccaaaatgac aggttcagca ccacccctt ctccaacacc taacaaagag atgaagaaca 180 aagcagttot ttgcaaacct ttaacaatga caaaagctac ttactgtaaa cctcacatgc 240 agaccaaatc ttgtcagaca gatgatactt ggaggacaga atatgttcca gtgcctatcc 300 ctgtgcctgt gtatatccca gttcctatgc acatgtacag tcagaatatt cctgttccta ctacagttcc tgttcctgtg ccagttcctg tttttctgcc tgctccattg gacaqcaqtq 420 agaagattcc tgcagcaatt gaggagctaa aaagcaaggt ttcttcagat gctcttgata 480 cagagttgct tacaatgacg gatatgatga gtgaagacga ggggaaaaca gagacaacca 540 acatcaacag tgtaattatt gaaacagata taattggttc agaccttttg aagaactctg 600 acccagagac acagtccagc atgcctgatg taccatatga accagatttg gatatcgaan €60 tagattttcc cagagctgct gaaggagcct tgatatggga aaatgaattt ttattaccaa 720 congtttttg ggcgaaagaa tatgaaggaa caagcccaaa cctcgattct aaaaaaaagg 780

ggagccaagg agaaaagg	798
<210> 324	
<211> 754	
<212> DNA	
<213> Homo Sapiens	
<400> 324	
aaaaggacac taaggtttta ataaggggaa caaaaaattg t	ttttcaccag catagattca 60
cattacagta caccaatatt gacagcattc tcttgtctat t	ttttggtaca gaagatggta 120
totototaca taacottgta aggottcagt aactaaaatg t	
ccccaaaaca aaacaaaaac cccagcctat tagtttacag t	tttattttaa aaattccgaa 240
agacactgca agttctaaac ttttagtagt gctacccata c	cacaaccatc tggttaagaa 300
cccagtaaaa gagccccctt ccaaggaagc tttgcaacag t	tagagttgtg caatatggat 360
gtttcttact acaagaaaaa aattatacat ggcacattct c	cattcatatt ctgtaatgta 420
aaaagttaca aacataccta atcaaataaa taataataaa a	aaaagaattt gaatgtattt 480
gttaagtatc ctaaaaccac tacatagaat aatggcaact t	ttcactcaca gattatttac 540
atggtaatac ccagcgtggg tacactgcta caaaactcaa a	aacagaagga gtaaacttga 600
aatgttttcc ataataaaga tctagcanca tgactatcct a	aatgccgttt tatcccgaat 660
gettetggca acgttecett ttaateeggt gteteateea a caaaaaatat cettttacaa gaaagaaace egtt	
caaaaaaaaa cccccaaa gaaagaaacc cgcc	754
<210> 325	
<211> 854	
<212> DNA	
<213> Homo Sapiens	
<400> 325	
ggtcaggggt gagagctgga atctctgcac gggccttgga a	aaacgactgt cttcttctgc 60
caaaatgtca ggaattggaa ataaaagagc agctggagaa c	ectggcacct ccatgcctcc 120
tgagaagaag gcagctgttg aagattcagg gaccacagtg g	gaaacaatta agctaggagg 180
tgtctcttca acggaggaac tagacattag aacactgcaa a	accaaaaatc gcaagctqqc 240
agaaatgttg gatcagcggc aggccattga agatgaactt c	cgtgagcaca ttqaaaaact 300
ggaacgacga caggccactg atgatgcctc actattgatt g	gtcaaccgat actggagtca 360
gtttgatgaa aacatccgta tcatccttaa acgttatgat c	ctggagcagg gcttgggaga 420
cctactcaca gaacgaaaag cccttgttgt gcctgaacca g	gaaccagact ctgatagcaa 480
tcaggagcgt aaagatgacc gagagagagc agttccagtg a	aagagatgga gtctcagctg 540
caggaacgtg tggagtette cegeegagee gtgteecaga t	ttgtgactgt ttatgataaa 600
ttgcaagaaa aagtggagct cttatcccgg gaagctaaac a	agtgggagat aatctgatag 660
tggagggaag canttgcaag gagctgaact ctttcctcgc a	acaaggagaa tattaaggct 720
acanggaatt gacaagatct teeteaggaa aaagcatege a	aaccatggtc tcaaggngtt 780
cctccaaagt tgcaagaggt aaaattgggg naaaagccga a	attcaccaan tttccggtcc 840
tggaagtcca anga	854
<210> 326	
<211> 760	
<212> DNA	
<213> Homo Sapiens	
<400> 326	
caaactgaat cctgctttaa ttcaagcttg tggagaacaa a	agtectacag aaacatteca 60
cagaattttc tggaaaagag ggatcacaac aaccctgtaa a	aaaggagact gagagtaatt 120
catageteae caagttetet eegtateaaa ttteeagaat a	acccacaaga tttcttcacc 180
ageteagtee tgaeteaace tetteaatet ttattteatt a	agaagacaaa gggtcatatt 240
atttaaaatt attctagtct caagaaattt aaagacttga a	agtagtagag cattcaaaac 300

```
ttaaataact ttaacaagaa agccagctqa tcttaacaag ttactctqct agtaaatqqq
                                                                      360
aaataqactq aatcatccta qacataattt cattaqqqct qcaaaccacc caqqqqaqaq
                                                                      420
tagcacaatt ataccatttt gtaatccaca ttcacaagaa gtttgctaca caaatgaaga
                                                                      480
aaactttqtq cccatagaca acttatttt taaaatatca ctccccaaaa qtaqccatqt
                                                                      540
ttccactttt gttccctttt ccacatcaaa aataccaact tgatttcttc aggaggaatg
                                                                      600
gacaatccaa gtttatacaa gtgggctggg aaaaagaaaa cactgaaaag tctaaaagca
                                                                      660
caagataaac aaagcctggg aagggaagac agttaagagt tatttgtttc caantcaatc
                                                                      720
cnaaaaccca anggcttgta attaacaagt cctttccggc
                                                                      760
      <210> 327
      <211> 852
      <212> DNA
      <213> Homo Sapiens
      <400> 327
caaagcagtt ctttgcaaac ctttaacaat gacaaaagct acttactgta aacctcacat
                                                                       60
gcagaccaaa tcttgtcaga cagatgatac ttggaggaca qaatatqttc caqtqcctat
                                                                      120
ccctgtgcct gtgtatatcc caqttcctat qcacatgtac aqtcaqaata ttcctqttcc
                                                                      1.80
tactacagtt cetgtteetg tgecagttee tgtttttetg cetgeteeat tggacagcag
                                                                      240
tgagaagatt cctgcagcaa ttgaggagct aaaaagcaag gtttcttcag atqctcttqa
                                                                      300
tacagagttg cttacaatga cggatatgat gagtgaagac gaggggaaaa caqaqacaac
                                                                      360
Caacatcaac agtgtaatta ttgaaacaga tataattggt tcagaccttt tgaagaactc
                                                                      420
tgacccagag acacagtcca gcatgcctga tgtaccatat gaaccaagat ttggatatcg
                                                                      480
aaatagattt toccagagot gotgaggago ttgatatgga aaatgaattt ttattaccac
                                                                      540
ctgtttttgg cgaagaatat gaggaacagc ccaagacete gatetaaaaa aaaaqqqaqc
                                                                      600
caagagaaan gctgtatcaa ggataccaag tctcatgatg ataagtctga caatttcaqa
                                                                      660
atgcagentt cettteaaat tataegtatg ggcgtaaatg catgggnaac accgggteaa
                                                                      720
aaactaagnn acttggatga aagatcntcc gggnaattag aatgagttaa aatccttcca
                                                                      780
aatccantna agtttaaaag agggtntaat cccctcaaaa ccanaqctqq nqccttaaca
                                                                      840
agggggttaa cc
                                                                      852
      <210> 328
      <211> 799
      <212> DNA
      <213> Homo Sapiens
      <400> 328
aaaaggacac taaggtttta ataaggggaa caaaaaattg ttttcaccag catagattca
                                                                       60
cattacagta caccaatatt gacagcattc tcttgtctat ttttggtaca gaagatggta
                                                                      120
totototaca taacottgta aggottoagt aactaaaatg taaaaccaaa caaaacaaaa
                                                                      180
ccccaaaaca aaacaaaaac cccagcctat taqtttacaq tttattttaa aaattccqaa
                                                                      240
agacactgca agttctaaac ttttagtagt gctacccata cacaaccatc tggttaagaa
                                                                      300
cccagtaaaa gagccccctt ccaaggaage tttgcaacag tagagttgtg caatatggat
                                                                      360
gtttcttact acaagaaaaa aattatacat ggcacattct cattcatatt ctqtaatqta
                                                                      420
aaaagttaca aacataccta atcaaataaa taataataaa aaaaqaattt gaatgtattt
                                                                      480
gttaagtatc ctaaaaccac tacatagaat aatqqcaact ttcactcaca qattatttac
                                                                      540
atggtaatac ccagcgtggg tacactgcta caaaactcaa aacagaanga gtaaacttga
                                                                      500
aatgttttcc ataataaaga tctagcaaca tgactatcca atgctgtttt atcccgattg
                                                                      660
cttctgcaac gttcctttta atccgtgtct catccagttc anaantgtcc ttatcaanaa
                                                                      720
taacctttac tagaagaaac cgtncaagca tattttcaan gggtttccgg tccaattgaa
                                                                      780
gttanacgtn taccaaaca
                                                                      799
```

<210> 329

<211> 978

<212> DNA

```
<213> Homo Sapiens
```

```
<400> 329
ggaagatggc ggcggccgtt ccacagcggg cgtggaccgt ggagcagctg cgcagtgagc
                                                                       60
agetgcccaa gaaggacatt atcaagtttc tgcaggaaca cggttcanat tcgtttcttq
                                                                       120
cagaacataa attattagga aacattaaaa atgtggccaa gacagctaac aaggaccact
                                                                       180
tggttacagc ctataaccat ctttttgaaa actaagcgtt ttaagggtac tgaaagtata
                                                                       240
agtaaagtgt ctgagcaagt aaaaaatgtg aagcttaaat gaagataaac ccaaagaaac
                                                                      300
caagtotgaa gagaccotgg atgagggtoo cocaaaatat actaaatoot gttotgaaaa
                                                                      360
agggagataa aaccaacttt cccaaaaagg gagatgttgt tcactgctgg tatacaggaa
                                                                      420
cactacaaga tgggactgtt tttgatacta atattcaaac aagtgcaaag aagaagaaaa
                                                                       480
atgccaagcc tttaagtttt aaggtcggag taggcaaagt tatcagagga tgggatgaag
                                                                       540
ctctcttgac tatgagtaaa ggagaaaagg ctcgactgga gattgaacca gaatqqqctt
                                                                      600
acggaaagaa aggacagcet gatgccaaaa ttccnccaaa tgcaaaactc acttttgaag
                                                                       660
tggaattagt ggatattgat tgaaatagca gtgcttcagc tctaaggata ttagcaacaa
                                                                      720
tgataaaact tggccttgaa gaaatttacn caactagtta gaacttgtta ctattgtaaa
                                                                      780
ggaagaqtca actggaaaat tcaaggagtt aataaaattt gtttacttgg tcccaqcttt
                                                                       840
tgagagataa atcccttatg aatccctggt ctaaaatact ttcctacagc tgtgtaaaat
                                                                       900
actggtcaag gagaactttt tccttttacc tcatgttgta aacttaagtg gctcaataaa
                                                                      960
aattgateen etgtettg
                                                                       978
     <210> 330
      <211> 1017
      <212> DNA
      <213> Homo Sapiens
      <400> 330
egateggegg ageteceace teegettaca getegetgee geegteetge eeegegeeee
                                                                       60
caggagacct ggaccagacc acgatgtgga aacgetgget cgcgctcgcg ctcgcgctgg
                                                                       120
tggcggtcgc ctgggtccgc gccgaggaag agctaaggag caaatccaag atctgtqcca
                                                                       180
atgtgttttg tggagccggc cgggaatgtg cagtcacaga gaaaggggaa cccacctgtc
                                                                       240
tetgcattga gcaatgcaaa cetcacaaga ggeetgtgtg tggcagtaat ggeaagacet
                                                                       300
acctcaacca ctgtgaactg catcgagatg cctgcctcac tggatccaaa atccaggttg
                                                                       360
attacgatgg acactgcaaa gagaagaaat ccgtaagtcc atctgccagc ccagttgttt
                                                                      420
```

gctatcagtc caaccgtgat gagctccgac gtcgcatcat ccagtggctg gaagctgaga 480 tcattccaga tggctggttc tctaaaggca gcaactacag tgaaatccta gacaagtatt 540 ttaagaactt tgataatggt gattctcgcc tggactccag tgaattcctg aagtttgtgg 600 aacagaatga aactgccatc aatattacaa cgtatccaga ccaggagaac aacaagttgc 660 ttaggggact ctgtgttgat gctctcattg aactgtctga tgaaaatgct gattggaaac 720 teagetteea agagtttete aagtgeetea acceatettt caaceeteet gagaagaagt 780 gtgccctgga ggatgaaacg tatgcagatg gagctgagac cgangtggac tgtaacccqc 840 tgtgtctgtg cctgtggaaa ttgggtctgt cagccatgac ctgtgacnga aagaatcaga 900 agggggccca gacccagacn gaggangaga tgancngata tgtccaggag ctccaaagct 960 taggaaacag cttgaaaaga nccagagagg gagcccccaa agagattatg aggaggc 1017

<210> 331

<211> 799 <212> DNA

<213> Homo Sapiens

<400> 331

cccagaaaga tcatcacagt ttctgtaaaa gaagatgtac acctgaaaaa ggcagaaaat 60 gcctggaagc caagccaaaa acgagacagc caagccgatg atcccgaaaa cattaaaacc 120 caggagettt ttagaaaagt tegaagtate ttaaataaat tgacaccaca gatgttcaat 180 caactgatga agcaagtgtc aggacttact gttgacacag aggagcggct gaaaqqagtt 240

```
attgacctgg tctttgagaa ggctattgat gaacccagtt tctctgtggc ttacgcagac
                                                                      300
atgtgtcgat gtctagtaac gctgaaaqta cccatqqcaq acaaqcctqq taacacaqtq
                                                                      360
aatttccgga agctgctact gaaccgttgc cagaaggagt ttgaaaaaga taaagcagat
                                                                      420
gatgatgtct ttgagaagaa gcagaaagaa cttgaggctg ccagtgctcc aqaqqaqaqq
                                                                      480
acaaggette atgatgaact ggaagaagee aaggacaaag eeeggeggag atecattgge
                                                                      540
aacatcaagt ttattggaga actctttaaa ctcaaaatgc tgactgaagc catcatgcat
                                                                      600
gactgtgtgg tgaagctgct aaagaaccat gatgaagaat ccctggagtg cctgtgtcgc
                                                                      660
ctgctcacca ccattggcaa agacttggac tttgaaaaaa gccaaagcca cgtatggacc
                                                                      720
cagtacttta atcaqatgga gaaaattgtg aaaggaaaga aaaacctcat ctaqqatcqq
                                                                      780
gtcatgcttt caggaggtt
                                                                      799
     <210> 332
     <211> 881
     <212> DNA
     <213> Homo Sapiens
     <400> 332
cgatcggcgg agctcccacc tccgcttaca gctcgctgcc gccgtcctgc cccgcgcccc
                                                                       60
caggagacct ggaccagacc acgatgtgga aacgctggct cgcgctcgcg ctcgcgctgg
                                                                      120
tggcggtcgc ctgggtccgc gccgaggaag agctaaggag caaatccaag atctgtgcca
                                                                      180
atgtgttttg tggagccggc cgggaatgtg cagtcacaga qaaaggggaa cccacctgtc
                                                                      240
tctgcattga gcaatgcaaa cctcacaaga ggcctgtgtg tggcagtaat ggcaagacct
                                                                      300
acctcaacca ctgtgaactg catcgaqatg cctqcctcac tqqatccaaa atccaggttg
                                                                      360
attacgatgg acactgcaaa gagaagaaat ccgtaagtcc atctgccagc ccagttgttt
                                                                      420
gctatcagtc caaccgtgat gagctccgac gtcgcatcat ccagtggctg gaagctgaga
                                                                      480
tcattccaga tggctggttc tctaaaggca gcaactacag tgaaatccta gacaagtatt
                                                                      540
ttaagaactt tgataatggt gattctcgcc tggactccag tgaattcctg aagtttgtgg
                                                                      600
aacagaatga aactgccatc aatattacaa cgtatccaqa ccaqqaqaac aacaagttgc
                                                                      660
ttaaqqqact ctgtgttgat gctctcattg aactgtctga tgaaaatgct gantggaaac
                                                                      720
ttagctttca agaagtttct caagngcctt naacccatct ttnaaccttc ttgagaagaa
                                                                      780
tgtgcccttg gaggatgaaa cgtatgccan atggagcttg aaancgaggt ggactgtaan
                                                                      840
cogttggnct gggncctggg gaaaattggg tottggacaa g
                                                                      881
      <210> 333
      <211> 810
      <212> DNA
      <213> Homo Sapiens
      <400> 333
gtgcagtcac agagaaaggg gaacccacct qtctctqcat tqaqcaatqc aaacctcaca
                                                                       60
agaggcctgt gtgtggcagt aatggcaaga cctacctcaa ccactgtgaa ctgcatcgag
                                                                      120
atgectgect caetggatec aaaatecaqq ttqattacqa tqqacactqc aaaqaqaaqa
                                                                      180
aatccgtaag tccatctgcc agcccagttg tttgctatca gtccaaccgt gatgagctcc
                                                                      240
gacgtcgcat catccagtgg ctggaagctg agatcattcc agatggctgg ttctctaaag
                                                                      300
gcagcaacta cagtgaaatc ctagacaagt attttaagaa ctttgataat ggtgattetc
                                                                      360
gcctggactc cagtgaattc ctgaagtttg tggaacagaa tgaaactgcc atcaatatta
                                                                      420
caacgtatcc agaccaggag aacaacaagt tgcttagggg actctgtgtt gatgctctca
                                                                      480
ttgaactgtc tgatgaaaat gctgattgga aactcagctt ccaagagttt ctcaagtgcc
                                                                      540
teaacccate tttcaaccct cetgagaaga agtgtgeeet ggaggatgaa acgtatgcag
                                                                      600
atggagetga gacegangtg gactgtaace egetgtgtet gtgeetgtgg aaattgggte
                                                                      660
tgtcagccat gacctgtgac ngaaagaatc agaagggggc ccagacccag acngaggang
                                                                      720
agatganeng atatgtecag gagetecaaa gettaggaaa cagettgaaa aganecagag
                                                                      780
```

<210> 334

agggagcccc caaagagatt atgaggaggc

810

<211> 808 <212> DNA <213> Homo Sapiens <400> 334

cactttaatt tetttattea teaatagtat eegaaaagga agaateagga gttacaaaaa 60 caagttaaat gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc 120 aacagaaact tgtttagatt gtttcttgaa gtttgactac ttaaaaaacat aggtgtaaag 180 gaaaqacatt cagactgqtc cacqtgqqct tqttaqcaqq caqaqqaacc ctqctttcca 240 aaaactgata tagtecagag teaeggcatg tgggaatgtt teeatggaca etggatetta 300 acagatgeta tagtgtttac aaaactacac acacagagaa agcccaagga agcctgcagg 360 ctaagcccta tgcttttaga gggctgaagg aaccaaacct aqtttaatcc tqtttqtttq 420 ctccatgcaa aactttatgg aagactcccc agactaggct atttagcagc ttccatgaat 480 ggtcctcaga tcatgtgatt ctacggcata gacgacagct gccctattta cacagaagct 540 qcaqaactca agaqqaatgt ggatttgctc ttgggaagtt caatgttgca qqqtaaagta 600 agtettggat gataaccatg ttetaaatga etagtgaaqa qacaetqnqq tttettqett 660 ttaacaaatt ggnggactct tggcccttct tcccatagng tccaagggct ggtaaaacct 720 ttggattaag gegtgnetge ttgggagtte ttecaaggea etttggacea gggaacetge 780 atttcaaact ggaccaagtg gaggtttg 808

<210> 335 <211> 758 <212> DNA

<213> Homo Sapiens

<400> 335

gcaattgggt atctcgaaga gcagatcaag ggcctaaaac tatcgaacag attcacaaag 60 aggetaaaat agaagaacaa gaagagcaaa gqaaqqteca qcaactcatq accaaagaga 120 agagaagacc aggtgtccag agagtggacg aaggtgggtg gaacactgta caaggggcca 180 agaacagtog ggtactggac coctcaaaat tootaaaaat cactaagcot acaattgatg 240 aaaaaaattca gctggtacct aaagcacagc taggcagctg gggaaaaggc agcagtqqtq 300 gagcaaaggc aagtgagact gatgccttac ggtcaagtgc ttccaqttta aacaqattct 360 ctgccctgca acctccagca ccctcagggt ccacgccatc cacgcctgta gagtttgatt 420 ceegaaggac ettaactagt egtggaagta tgggeaggga gaagaatgac aageceette 480 catctgcaac agctcggcca aatactttca tgaggggtgg cagcagtaaa gacctgctag 540 acaatcaqtc tcaaqaaqaq caqcqqaqaq aqatqctqqa qaccqtqaaq caqctnacan 600 gaggtgtgga tgtggagagg aacagcettg agetgaaceg aaataaacaa gggagtcage 660 aaaaccccga aanttcagca atgtcagctt attgacaagg gttgattatc agaagaggac 720 tgganaggaa gtccaaatct atcatggtna atttttc 758

<210> 336 <211> 785

<212> DNA

<213> Homo Sapiens

<400> 336

aaacttgcaa tgtttgtctt tattttgttc tttatatttt caaagtgaaa agaaatagta 60 ctgagtcaat ttctttttgt ttttttaaat atttgttcta tgtatttaca agccttaaag 120 ttgctctaaa gatttcaaga gtattaagag tacttttctc agggtagcac ttttttttt 180 tttaaacaat tettggagtt etgtggteea eageatttee ttetgtttea atgttatgta 240 cgttttgatt actattgnga ttttttaaat tttctgaagc aagctgagag gcaggcagaa 300 agatttgatg ccaaaaaaaa aaaaatcttt cttaccttgt tcaccccaaa ctttctcaaa 360 totggactaa atgctatacc ttaaaacaaa catgaggngc atcttgaagg ggagggaaat 420 ttatttctct gcttttctat tatacaagtt gtttacagaa actgcaaatt aaaaaaattac 480 actggcattt gcagtcctta aaataaatta aaagttctca acttttttt ttttgctaaa 540

```
cattttttta aqtatqaqtc cttqtttaaa aaqaaaaqat taaaacaqaa aatattttct
                                                                      600
ataaatacnt gnattttggg tttaagggct cccgccctaa ggnttgaagg ttacttttat
                                                                      660
cccaggaccc tttttcctcc atggaacccc tttttttcnc ttttcccttt tcccacttcg
                                                                      720
ngccncccnt ngggggtttc tggcaaaaaa tggcccttgc tgcnctgggg aattggccaa
                                                                      780
aaacc
                                                                      785
      <210> 337
      <211> 643
      <212> DNA
      <213> Homo Sapiens
      <400> 337
ggaagatggc ggcggccgtt ccacagcggg cgtggaccgt ggagcagctg cgcagtgagc
                                                                       60
agotgoccaa gaaggacatt atcaagttto tgoaggaaca oggttoanat togtttottg
                                                                      120
cagaacataa attattagga aacattaaaa atgtggccaa gacagctaac aaqqaccact
                                                                      1.80
tggttacagc ctataaccat ctttttgaaa actaagcgtt ttaanggtac tgaangtnta
                                                                      240
nntaaaqtgt ctgancaagt naaaaatgnn aancttantg aagataancc caaagaaacc
                                                                      300
aagtntgang agaccctgga tgagggtcca ccnaaatata ctaaatctgn tctqaaaaaq
                                                                      360
ggagataaaa ccaactttcc caaaaaggga gatgttgttc actgctggta tacaggaaca
                                                                      420
ctacaagatg ggactgtttt tgatactaat attcaaacaa gtgcaaagaa naagaaaaat
                                                                      480
gccaagcctt taagttttaa ggtcggagta cgcaaaagtt atcanaggat ggggatgaag
                                                                      540
ctctcttgac tatgagtaaa ggagaaaagg ctngactgga aaatggaccc aaaatggctt
                                                                      600
accggaaaga aagggacagc ctgatnccaa aatttcccca aat
                                                                      643
     <210> 338
     <211> 831
      <212> DNA
      <213> Homo Sapiens
      <400> 338
caagacagng gatcaatttt tattgagcca cttaagttta caacatgagg taaaaggaaa
                                                                       60
aagttotoot tgaccagtat tttacacage tgtaggaaag tattttagac cagggattca
                                                                      120
taagggattt atctctcaaa agctgggacc aagtaaacaa attttattaa ctccttgaat
                                                                      1.80
tttccagttg actcttcctt tacaatagta acaagttcta actagttgng taaatttctt
                                                                      240
caaqqccaag ttttatcatt gttgctaata tccttagagc tgaagcactg ctatttcaat
                                                                      300
caatatccac taattccact tcaaaagtga gttttgcatt tggnggaatt ttggcatcag
                                                                      360
getgteettt ettteegtaa geceattetg gtteaatete eagtegagee tttteteett
                                                                      420
tactcatagt caagagaget teateceate etetgataae titgeetaet eegacettaa
                                                                      480
aacttaaagg cttggcattt ttcttcttct ttgcacttgt ttgaatatta gtatcaaaaa
                                                                      540
cagteccate ttgtagtgtt cetgtatace ageagtgaac aacateteee tttttgggaa
                                                                      600
agttggtttt atctcccttt ttcagaacag gatttagtat attttggggg accctcatcc
                                                                      660
agggtctctt cagacttggt ttctttgggt ttatcttcat ttaagcttca cattttttac
                                                                      720
ttgctcagac actttactta tactttcagt acccttaaaa ccgcttaagt ttcaaaaaag
                                                                      780
agggttatag getgnaacce aaggggggee ttggtnaget ggeettggge e
                                                                      831
      <210> 339
      <211> 758
      <212> DNA
      <213> Homo Sapiens
      <400> 339
ccaacatgte cegtggttee agegeeggtt ttgacegeea cattaccatt ttttcacecg
                                                                       60
agggtcggct ctaccaagta gaatatgctt ttaaggctat taaccagggt ggccttacat
                                                                      120
cagtagctgt cagagggaaa gactgtgcag taattgtcac acagaagaaa gtacctgaca
                                                                      180
aattattgga ttccagcaca gtgactcact tattcaagat aactgaaaac attggttgtg
                                                                      240
```

```
tgatgaccgg aatgacagct gacagcagat cccaggtaca gagggcacgc tatgaqqcag
                                                                      300
ctaactqqaa atacaaqtat qqctatqaqa ttcctqtqqa catqctqtqt aaaaqaattq
                                                                      360
ccgatatttc tcaggtctac acacagaatg ctgaaatgag gcctcttggt tgttgtatga
                                                                      420
ttttaattgg tatagatgaa gagcaaggcc ctcaggtata taagtgtgat cctgcaggtt
                                                                      480
actactgtgg gtttaaagcc actgcagcgg gagttaaaca aactgagtca accagettec
                                                                      540
ttgaaaaaaa agtgaagaag aaatttgatt ggacatttga acagacagtg gaaactgcaa
                                                                      600
ttacatgcct gtctactggt ctatcaattg atttcaaacc ttcagaaata gaagttggag
                                                                      660
tagtgacagt tgaaaatcct aaattcagga ttcttacngg aagcagagat tgatgcttac
                                                                      720
cttgtgnttt agengagagg agaettaace attggeeg
                                                                      758
      <210> 340
      <211> 840
      <212> DNA
      <213> Homo Sapiens
      <400> 340
ccaaaagcct tgttttattt atatagagtc ctaaccactt cggtggtagg aggagtggga
                                                                       60
gaggeteett ttteaateea gggaceteea tgatgttggt ttgttgttae caaacacaca
                                                                      120
ggtaagtggc atcacggatc tggtaaacta acgacaatgt ttagtctctc tctqctaqaq
                                                                      180
caacaaggtg agcatcaatc totgottotg taanaatcot gaatttagga ttttcaactg
                                                                      240
tcactactcc aacttctatt tctgaaggtt tgaaatcaat tgatagaaca gtagacaggc
                                                                      300
atgtaattgc agtttccact gtctgttcaa atgtccaatc aaatttcttc ttcacttttt
                                                                      360
tttcaaggaa gctggttgac tcagtttgtt taactcccgc tgcagtggct ttaaacccac
                                                                      420
agtagtaacc tgcaggatca cacttatata cctgagggcc ttgctcttca tctataccaa
                                                                      480
ttaaaatcat acaacaacca agaggcetca tttcagcatt ctgtgtgtag acctgagaaa
                                                                      540
tateggeaat tettttacae ageatgteea caggaatete atageeatae ttggatttee
                                                                      600
agttagctgc ctcatagccg tgcccttctg tacctgggat ctgctgtcag ctgcattccg
                                                                      660
gtcatcacac aaccaatggt ttcagttatc ttggaataag tgaggtcact gngctggaat
                                                                      720
nccaataatt tggcaggnac ctttctttct ggggngacaa ttactggccc agtcttttcc
                                                                      780
tttggacagn tactggaggt aagggccacc ctgggttaat agccctttaa aggcntaatc
                                                                      840
      <210> 341
      <211> 793
      <212> DNA
      <213> Homo Sapiens
      <400> 341
cactttaatt totttattca tnaatagtat oogaaaagga agaatcagga gttacaaaaa
                                                                       60
caagttaaat gcaatataga agcctactaa atacaaatac aagttcacaa acacatatgc
                                                                      120
aacagaaact tgtttanatt gtttcttgaa gtttgactac ttaaaaacat aggngtaaag
                                                                      180
gaaagacatt canactgqtc cncqnqqqct tqntaqcaqq caqaqqaacc ctgctttcca
                                                                      240
aaaactgnta tagtccanan teneggeatg ngggaatgnt tecatggaen etggatetta
                                                                      300
acagatgeta tagggtttac aaaactacne acneagagaa ageecaagga ageetgeagg
                                                                      360
ctaagcccta tgcttttaga gggctgaagg aaccaaacct agtttaatcc tgtttgnttg
                                                                      420
ctccatgcaa aactttttgg aaactccccc agactagget ttttancagn nttccattga
                                                                      480
atggggcnnc aaancnttgg gaattttacg gntnaaancn aaagntngcc ttntttnccc
                                                                      540
ccgaaagctt tgaaaaactt ttcagngggn atnggggaat ttggnttntt ggggnnqttc
                                                                      600
aattgttncc ngggtaaaaa ganacccttg gggaggnaaa cccctgngtt tnaannggcc
                                                                      660
ttaggggaaa naaccontgg gggtntontt ggnnttttaa caaaattggg gggnontttt
                                                                      720
ggnccttcct cccaaaaggg ggcccanggn ctgnggaaaa aaccttttgg antaaggggg
                                                                      780
gnecennett gga
                                                                      793
      <210> 342
```

<211> 906

<212> DNA

<213> Homo Sapiens

<400> 342

ccaacatgtc ccgtggttcc agegccggtt ttgaccgcca cattaccatt ttttcacccq 60 agggtcggct ctaccaagta gaatatgctt ttaaggctat taaccagggt ggccttacat 120 cagtagctgt cagagggaaa gactgtgcag taattgtcac acagaagaaa gtacctgaca 180 aattattgga ttccagcaca gtgactcact tattcaagat aactgaaaac attggttgtg 240 tgatgaccgg aatgacagct gacagcagat cccaggtaca gagggcacgc tatgaggcag 300 ctaactggaa atacaagtat ggctatgaga ttcctgtgga catgctgtgt aaaagaattg 360 cogatattte teaggtetae acacagaatq etqaaatqaq qeetettqqt tqttqtatqa 420 ttttaattgg tataqatqaa qaqcaaqqcc ctcaqqtata taaqtqtgat cctgcaqqtt 480 actactqtqq qtttaaaqcc actqcaqcqq qaqttaaaca aactqaqtca accaqcttcc 540 ttgaaaaaaa agtgaagaag aaatttgatt ggacatttga acagacagtg gaaactgcaa 600 ttacatgcct gtctactgtt ctatcaattg atttcaaacc ttcaqaaata qaaqttggag 660 tagtgacagt tgaaaatcct aaattcagga ttnttacaga agcagagatt gatgctcacc 720 ttgttgctct agcagagaga gactaaacat tgtcgttagt ttaccagatc cgtgatqcca 780 cttacctgtg tgtttggtaa caacaaacca acatcatgga ggtccctgga ttgaaaaagg 840 ageotetece actectecta ccaccgaagt ggttaggact ctatataaat aaaacaagge 900 ttttgg 906

<210> 343

<211> 875 <212> DNA

<213> Homo Sapiens

<400> 343

gcaaggcaat tgagcgtgga acaggaaatg acaattatag aacaacggga attgctacaa 60 tegaggtgtt tttaccacca agactaaaaa aagataggaa aaacttgttg gagacccgat 120 tgcacatcac tggcagagaa ctgaggtcca aaataqctqa aacctttqqa cttcaagaaa 180 attatatcaa aattgtcata aataagaagc aactacaact agggaaaacc cttgaagaac 240 aaggegtgge teacaatgtg aaagegatgg tgettgaact aaaacaatet gaagaggacg 300 cgaggaaaaa cttccagtta gaggaagagg agcaaaatga ggccaaactc aaagaaaaac 360 aaattcagag gaccaagaga ggactagaaa tactggcaaa gagagcagca gagacagtgg 420 tggatccaga aatgacaccg tacttagaca tagctaacca gacaggcaga tcaatcagaa 480 ttcccccatc agaaagaaaa gcccttatgt tagctatggg atatcatgag aagggcagag 540 ctttcctgaa aaqaaaagaa tatggaatag ccttgccatg tctgttggac gctgacaaat 600 atttctgtga gtgttgcaga gagctgctgg acacagtgga taactatgcc cgtcttcagc 660 tggatatagt gtggtgttac tttcgcctgg aacagctgga atgccttgat gatgcaqaaa 720 aaaaattaac ttggnccaga aatgctttaa aaattggtcc ggagaaatcn tcgaaactgg 780 toccontaaa nggaattgtg gggaaaagag aangtotggt totaagactn tacttacttt 840 nagggatccg aacttttcca gggggaatga tgtaa 875

<210> 344

<211> 629

<212> DNA

<213> Homo Sapiens

<400> 344

atatttccca ccttttattt ccatcggtat catccgttta aaaagaatga caagaagatt 60
cccatcagtc caaactggac caccacact ttgaaaaagt tggaggatt cagccggctc 120
cgcatgatca atcctgtctt cagtcagtc cttctggaag ggagggaag tcttggatgg 180
acctggcact caatccact ggcacctggc tgctgctggg tgctggggc tggaaggaac 240
tcccactggg caccacatcta cagaggagt cgtggcgcag tgaggacggt tactgctgga 300
gccgacacac agcgaactac atacttttag aaagagctc tgtccacatgg ctagaacaca 320
accacacaca aagaaaaccc tggagaaaaa atactctaaat ctctgataag 420

taaattgctt tggttagcat					
	ttaaaccttt	cccattcaat	agaagatttc	tgtaatgagg	540
aatgctgaat atatataaag	cctgccactc	aatctttgaa	tttcngggg	cgcaatttta	600
ctgaactaag anccctaaaa		-	55555	J	629
-	55 5				023
<210> 345					
<211> 724					
<212> DNA					
<213> Homo Sapi	ens				
<400> 345					
cttgggtggt tattttnctt	ttctgngtcc	ttccccanca	gcagttggaa	ttttctttta	60
aacacaaagt aaattaatgt	tnatactont	ttttcacctq	agtcatgtaa	aaggtgagtg	120
ctttcatttt aaaaagttat	atttaattt	tagagagatt	agttaggau	taggegacce	180
ccatgngtnn tttttttgta					
					240
gcaaatnetg actteatttg	tgttttaaae	acgattatat	gaatttttct	tttttaatta	300
aaaaaatgac ataaaaccat					360
tttaaatatg ggtagatcaa	gacaagtaat	gttggnaatc	tcttatcttg	catagaaaag	420
aaaaaaataa aggaacttat	ttccttccta	aggtctcagc	tagtttctta	ngtetttet	480
tcagctccaa tggaaattno	tcatagcact	tcttacagac	tggcttcatg	tcaaactcca	540
caaacttatt cttgantgtt	aatttagtgt	tocacotana	acagggaaag	cagttcacgc	600
accaggeett attaagagea	gagaccccca	tcaccttcta	taacaccatt	aceatacas	660
gcaaacatca ccaaatagct	gagttataga	gagtttgaga	atatagaga	gcagtgggaa	
tcaa	gggccacagn	gageeecaca	acacgcccag	geerreerr	720
ccaa					724
.010 246					
<210> 346					
<211> 907					
<212> DNA					
-012: TT 0	ens				
<213> Homo Sapi	CIID				
<213> HOHIO SADI	CIID				
<213> HOMO SAPI	Cilo				
<400> 346		tgccatgctt	ttgtccaaac	tgaaggagac	60
<400> 346 agagcgaaat tttaccactg	agcaagtgac				60
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga	agcaagtgac agcctgtagt	tgactgtgtt	gtttcggttc	cttgtttcta	120
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat	agcaagtgac agcctgtagt cagtgatgga	tgactgtgtt tgcaacacag	gtttcggttc attgctggtc	cttgtttcta ttaattgctt	120 180
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat gcgattaatg aatgaaacca	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc	tgactgtgtt tgcaacacag tcttgcatat	gtttcggttc attgctggtc ggaatctata	cttgtttcta ttaattgctt agcaggatct	120 180 240
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat gcgattaatg aatgaaacca tcctgcctta gaagagaaac	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt	tgactgtgtt tgcaacacag tcttgcatat agtttttgta	gtttcggttc attgctggtc ggaatctata gacatgggcc	cttgtttcta ttaattgctt agcaggatct actctgctta	120 180 240 300
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat gcgattaatg aatgaaaca tcctgcctta gaagagaaac tcaagtttct gtatgtgcat	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga	120 180 240
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat tactgactta gaaggaaac tctgcctta gaaggaaac tcaagtttct gtatgtgcat caggacattg ggagtagaa	agcaagtgac agcctgtagt cagtgattga ctgcagttgc caagaaatgt ttaatagagg aatttgatga	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt	120 180 240 300
<400> 346 agagcgaaat tittaccactg agccgaaagt gittettaaga tactgatgca gaaagacgat gcgattaatg aatgaacca tcctgcctta gaagagaaaa tcaagttitt gtattytgcat cacgacattg ggaggtagaa tgggaagaaa tacaagctag	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet gcattattae	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctctca	120 180 240 300 360
<400> 346 agagcgaaat tittaccactg agccgaaagt gittettaaga tactgatgca gaaagacgat gcgattaatg aatgaacca tcctgcctta gaagagaaaa tcaagttitt gtattytgcat cacgacattg ggaggtagaa tgggaagaaa tacaagctag	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet gcattattae	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctctca	120 180 240 300 360 420 480
<400> 346 agagcgaaatt tttaccactg agccgaaagt ttttacaga tactgatggc gaaagacgat gcgattaatg aatgaaacca tcctgcctta gaaggagaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tgggaagaaa tacaagcttag ggagtgtgag aaactcaaga	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt tgcaaatgct	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet gcattattae teagatetee	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctctca ctttgagcat	120 180 240 300 360 420 480 540
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat tcatgatttaatg aatgaaacca tctagcttta gaaggaaaac tcaagtttct gtatgtgcat caggacattg ggaggtagaa tgggaagaaa tacaagctag ggagtgtaga aaactcaaga tgaatgtttt atgaatgatg tgaatgtttt atgaatgatg	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgatatc	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt tgcaaatgct tggaactatg	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateacettet gcattattac teagatetee aatagaggea	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctctca ctttgagcat aatttctgga	120 180 240 300 360 420 480 540
<400> 346 agagcgaaat tttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat gcgattaatg aatgaaacca tccagttttc gtatgtgcat cacgacattg gcgagtagaa tacgagaaaa tacaagctag ggagtgtgag aaactcaag tgaatgtttt tgaatgtttt tgaatgtttt aaactcaag ggagtgtgag aaactcaag tgaatgtttt atgaatgtttt tagaatgatg gattgcaat gatctcttag	agcaagtgac agcctgtagt cagtgattgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgat ttgatgtat ctagagtgga	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt tgcaaatgct tggaactatg gcaacactt	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet geattattae teagatetee aatagaggea egtagtgttt	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctctca ctttgagcat aatttctgga tggaacaaaa	120 180 240 300 360 420 480 540 600
<400> 346 agagcgaaagt ttttaccactg agccgaaagt ttttaccactg tactgatgca gaaagaagat ccattaatg aatgaaaacca tctgcctta gaaggaaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tgggaagaaa tacaagctag ggagtfgag aactcaagstag tgaatgtttt atgaatgatg gatgtgcaat gatgtgcaat gatgtgcaat gatgttaaa gaagaagagat ccaagttaaa gaaagaagaagat	agcaagtgac agcctgtagt cagtgattgc ctgcagttgc ctaagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtatc ctagagtgga atttatgcag	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt tgcaaatgct tggaactatg gccaccactt tggagatagt	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet geattattae teagatetee aatagaggee egtagtgttt tggtggtget	cttgtttcta ttaattgctt agcaggatct actctgctta ctgcatttga gtgaagaatt gactctcta ctttgagcat aatttctgga tggaacaaaa acacgaatcc	120 180 240 300 360 420 480 540 600 660
<400> 346 agagcgaaat tittaccactg agccgaaatt tittaccactg tactgatgca gaaagacgat gcgattaatg gcgattaatg gcgattaatg gcgattag gcagttggaaccactg tagaggtagaa tcagagcattg gaggtagaa tcaagctgtgaa tacagacttg gaagtgtgaa tgaatgttt tagaatgatt tagaatgatt tagaatgatt accagatataa gaatgtccaat gatgtccaat gatgtccat gaatgataa gaaagaagat ctcgcgtaaa agaagaagat ctcgcgtaaa agaagaagat ctcgcgtaaa agaagaagat ctcgcgtaaa agaagaagat	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttagtga acattaagtc aattgatgag ttgatgtatc ctagagtgga atttatgcag cagcaaaatt	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatccgt tgcaaatgct tgcaactatg gccaccactt tggagatagt tttggtaaa	gttteggtte attgetggte ggaatetata gacatgggee gttetggeea aateaettet geattattae teagatetee aatagaggea egtagtgttt tggtggtget gaaettagta	cttgitteta ttaattgett agcaggatet actetgetta etgeatttga gtgaagaatt gactetetea etttgageat aattetgga tggaacaaaa acaegaatec caacenttaa	120 180 240 300 360 420 480 540 600 660 720
<400> 346 agagcgaaagt tttaccactg agccgaaagt ttcttaaga tactgatgag gaagacgat gcgattaatg aatgaaacca tcctgcctta gaaggagaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tggaagaaa tacaagctag ggagttgag aaactcaaga tgaatgtttt atgaatgatg gatgtgcaat gatccttag ccaagttaaa gaaagaagat tdgcggtaaa gaagaagagat tdgctgatga aactgcactc	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 660 720 780 840
<400> 346 agagcgaaat tttaccactg agcgaaagt gttcttaaga tactgatgca gaaagacgat tactgatgca gaaagacgat tcagattaatg aatgaaacca tcagatttct gtatgtgcat caagacattg ggaggtagaa tgggaagaaa tacaagctag ggagtfyaga aaactcaaga tgatgttgag aaactcaaga tgatgttgaat atgatgttcaat gatgtgcaat gatgtgcaat gaagattaaa gaagagagat ccaagttaaa gaagagagat ccaagttaaa gaagagaagat ccaagttaaa gaagagaagat ccagttaaa agaagaagat ccagttaaa agaagagaat ccagttaaa agaagagaat ccagttaaa agaagagaat atgagagaagat atgagagaagaagat atgagagaagat atgagagaagat atgagagaagaagaagaagat atgagagaagaagaagaagaagaagaagaagaagaagaag	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<400> 346 agagcgaaagt tttaccactg agccgaaagt ttcttaaga tactgatgag gaagacgat gcgattaatg aatgaaacca tcctgcctta gaaggagaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tggaagaaa tacaagctag ggagttgag aaactcaaga tgaatgtttt atgaatgatg gatgtgcaat gatccttag ccaagttaaa gaaagaagat tdgcggtaaa gaagaagagat tdgctgatga aactgcactc	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 660 720 780 840
<400> 346 agagcgaaadt tttaccactg agccgaaagt ttttacaga tactgattgca gaaagacgat gcgattaatg aatgaaacca tcctgcctta gaaggagaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tgggaagaaa tacaagctag ggagttgag aaactcaaga tgaatgtttt atgaatgatg gattgcaat gatctcttag ccaagttaaa gaaagaagat ctgcggtaaa agagaagagat tdgcggtaaa agaantttct atcttcc	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<400> 346 agagcgaaat tttaccactg agcgaaagt gttcttaaga tactgatgca gaaagacgat tactgatgca gaaagacgat tcagattaatg aatgaaacca tcagatttct gtatgtgcat caagacattg ggaggtagaa tgggaagaaa tacaagctag ggagtfyaga aaactcaaga tgatgttgag aaactcaaga tgatgttgaat atgatgttcaat gatgtgcaat gatgtgcaat gaagattaaa gaagagagat ccaagttaaa gaagagagat ccaagttaaa gaagagaagat ccaagttaaa gaagagaagat ccagttaaa agaagaagat ccagttaaa agaagagaat ccagttaaa agaagagaat ccagttaaa agaagagaat atgagagaagat atgagagaagaagat atgagagaagat atgagagaagat atgagagaagaagaagaagat atgagagaagaagaagaagaagaagaagaagaagaagaag	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<400> 346 agagcgaaadt tttaccactg agccgaaagt ttttacaga tactgattgca gaaagacgat gcgattaatg aatgaaacca tcctgcctta gaaggagaaac tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tgggaagaaa tacaagctag ggagttgag aaactcaaga tgaatgtttt atgaatgatg gattgcaat gatctcttag ccaagttaaa gaaagaagat ctgcggtaaa agagaagagat tdgcggtaaa agaantttct atcttcc	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<400> 346 agagcgaaat ttttaccactg agccgaaagt gttcttaaga tactgatgca gaaagacgat gcgattaatg aatgaacca tcaagtttct gtatgtgca tcaagtttct gtatgtgcat cacgacattg ggaggtagaa tggaagtgttt atgaatctaag ggatgtgaa aactcaag gaatgtttt atgaatgatg gatgtgcaat gaatctctta ccaagttaaa gaaagaagat ttgcggtaaa aggaagagat atgctgatga aactgcact tcaaagtcag agaantttct actactcc <2210> 347	agcaagtgac agcctgtagt cagtgatgga ctgcagttgc caagaaatgt ttaatagagg aatttgatga acattaagtc aattgatgag ttgatgtag ctagagtgga atttatgcag cagcaaaaat	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<pre><400> 346 agagcgaaat ttttaccactg agccgaaatt ttttaccactg agccgaaatt gttcttaaga cactgatgca gaaagacgat gcgattaatg aatgaacca ccagtttct gtatgtgcat ccagacattg ggaggtagaa tgagaagttt atgaatctcag ggagtgtgag aactccaag gaatgttt atgaatgatg gatgtgcaat gatccttag gatgtgcaat gatccttag ccagttaaa gaaagaagat tgcgytaaa aggaagaag ttgcgatga aactgcact tcaaagtcgagaantttct caaagtcg agaantttct acttcc</pre> <pre><210> 347 <211> 711 <212> DNA</pre>	agcaagtgac agcctgtagt cagtgattga ctgcagttga ctgcagttga cagcaaatgt ttaatagag aatttgatgag acattaagtc aattgatgag ttgatgtatc ctagagtgga attatgag cagcaaaatt gaggctggg atcactgatg	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa	120 180 240 300 360 420 480 540 600 720 780 840 900
<pre><400> 346 agagcgaaatt tttaccactg agccgaaagt gttettaaga tactgatgca gaaagacgat gcgattaatg aatgaaacca tccagtttct gtatgtgcat cacgacattg ggaggtagaa tggagtgtgag aaactcaagat tggagtgtgag aaactcaagat tgatgtgtat gatctettag ccaagttaaa gaaagaaagat ctguggtaaa aggaagaagat atgctggtaa aactcaaga tgctgcgatag aactcctcaag ccaagttaaa gaaagaagat ctccaagtcact ccaaagtccg agaantttct atctcc</pre>	agcaagtgac agcctgtagt cagtgattga ctgcagttga ctgcagttga cagcaaatgt ttaatagag aatttgatgag acattaagtc aattgatgag ttgatgtatc ctagagtgga attatgag cagcaaaatt gaggctggg atcactgatg	tgactgtgtt tgcaacacag tcttgcatat agtttttgta aaaactgaaa agtgttagta caaaatcgt tgcaaatgct tggaactatg gccaccactt tggagatagt ttttggtaaa cattgcantg	gttteggtte attgctggte ggaatctata gacatgggce gttctggcca aatcacttct gcattattac tcagatctcc aatagaggca cgtagtgtt tggtggtgct gaacttagta ggcatcttag	cttgitteta ttaattgett agcaggatet actetgetta ctgcatttga gtgaagaatt gactetetca ctttgagcat aatttetgga tggaacaaaa acacgaatcc caaccnttaa tcgcetgett	120 180 240 300 360 420 480 540 600 720 780 840 900

60

ataatagnet gttttaatan aaacaagngt tggaatcaat caatgnecat ttcaggaage

BESTEE

WO 99/04265 PCT/US98/14679

```
ttnttgtctg aatccgaagg cncagctgng tctgtaccct gctcancagc ctgggggcct
                                                                      120
gggttgtctc cttgnccatc cactggtcca ttctgctctg catttttttg ttcctntttt
                                                                      180
ggaggttcca ctttgggttt gggctttgaa attatagggc tacaaqtact tqncaqctcc
                                                                      240
ttaattttag cttcaatctc ttttgacttg acaactggat ccatggncaa actntgcttg
                                                                      300
ttctgcaaat ttagcttggt attcatccac tccattgctt catttgggct tttttctacc
                                                                      360
tttgtcatgt cagcagcatc cgaatgatca tactggtcct ccttgntttt gaaagagctg
                                                                      420
attattttca tatactgntg aatctgnttc cctagttctt caaataattt tqqtcqttct
                                                                      480
tnaaattoot ggaaacgtat nttaataggt tgacctaaat tttttaatto agccaactta
                                                                      540
tcaacataaa cttqctttqq ctqqcttctc catcctcata caaccaattt tcaqtatctt
                                                                      600
ccagtttcaa agtaaaactg ttacgancat nttcactnnc aaacttctca tattcnccac
                                                                      660
taaagcttgg ctctcatttc ataccccata tttcctccca ctggggtctt a
                                                                      711
      <210> 348
      <211> 862
      <212> DNA
      <213> Homo Sapiens
      <400> 348
cttgagcctc atgtaaccgg cgctttagat caccaatctc ctcttgggct tcagatttaa
                                                                       60
tqtcatttgc aatqactact gcagtctgga gatcagcctg aaactgccqc cattccqcag
                                                                      120
attetteccg aagtettetg tggagtgtet ttatttetet ttecatgteg tgettttggt
                                                                      180
cctggagttt tttaactgta ttctctagat cagaaataat gaggttgtca tgaagtttca
                                                                      240
cagcacgatg ttgttctact tcatcttcaa gttcaaagat ggtttctttc atgtcactcc
                                                                      300
tttctgtttc tttttcatcc aggtctgatc ttaatttttc taacgtcata ttcaaatctt
                                                                      360
caatttgttt cttagcttct tcttggaagg ctcggtattc atcctctacc ttagcaatgg
                                                                      420
catcetgtaa tegattggca teattteggg tatgagecag atetteetge aagetactag
                                                                      480
ccaaagtete tgettttet ttgtecagee tgacactete caqqaqqtee tqaatatcag
                                                                      540
atttgnctcc agagttatgg atagaataca gctctgccac tttctgcttt tcattctcca
                                                                      600
gotgagoott caggogatto atototatot qqtcactqqc cactqnqqct ttqnattoot
                                                                      660
ctaacgtggc tgncaaggct gcttttcctt tctgctcnac tcaaataaat tcgctccata
                                                                      720
tgggnggact ggcgttcctt tggagtgccc cctatcattt cttggngctt tccttantqq
                                                                      780
ccttgggttc tggccatttt tccaaagtat tggctttaaa atggctggct tgggacnccc
                                                                      840
aaggaaagct ggttcccggt tc
                                                                      862
      <210> 349
      <211> 832
      <212> DNA
      <213> Homo Sapiens
      <400> 349
aagactttcc tacatcagtt ttatttaaaa cacaaacaag tatttctctt tctgtaaggg
                                                                       60
casatggttc asatsatgcq gascacqaaa cattgactaa tacaagtgct ttaaatatga
                                                                       120
aacaaaatta tttttaaaa aagcaaaaga ataaagaata tatacaaaag ggacctqqaa
                                                                       180
totgtaagot gattocaaaa acgaaataag tagaaaatoo atggtgaaac otgaacatto
                                                                      240
tacctctqct ttggagaagg gctatcatac aacattcagt cagctgaaga tggattggta
                                                                       300
gaggtgtgtc tatacataaa cttcagtcat ttttgcttqt qcaqaatcat cccaatcttc
                                                                       360
ccaagactga atgggcagtc ctgtggcttt cttccttttc catattccca acaaggctac
                                                                       420
gtgaagttca actottgatg agccgcttac aacagcagtt cottaggagc caacatgaca
                                                                      480
ggtgggtcag atttccctat gagaaacaaa actggccacc tacagcaaaa tatcaaaatg
                                                                       540
ggtaagteet teetteetet teeteetgat tatatacaac atateteett teaagaetat
                                                                      600
tatttccatc atgcttattc cttcacaaat ctaaaccttg aggtgatatg aaggaaacca
                                                                       660
acatcangaa aagaaaactc aattcagaaa tgaagaaaac tggcaggtat acaatacacc
                                                                       720
cccagaacat ctcaatatcc ctggccagta caattcaagt gnactgggta caggccata
                                                                       780
```

832

ggattaaata attgggcagc ttgggaataa agctcatttt tttnccctca qq

<210> 350 <211> 782 <212> DNA <213> Homo Sapiens

<400> 350

ccnacatcag tttnattnaa aacacaanca agnatttctn tttcngnang gncaaagggt tnaaanaang cgnancacna ancatngact aatncaaggg cttnaaatat qaancaaaat 120 natttttaa aaaagcaaaa naataaanaa tatatncaaa nggqaccnqn aatcnqnaaq 180 engatnecaa aacenaaata agtaaaaaan ceanggggaa neenganeat tenacetnng 240 nttngnaaaa gggctatcat ncaacattca gncagntgaa nanggatngg nanaggnggg 300 ncnatncata ancttcagnc attttngctn gggcaaaatc atcccaatnt tcccaanact 360 gaanggneag ccengggget ttetteettt necanattee caacanggnt acgngaagtt 420 caactninga nganccgitt acaacagcag ticcttagga nccancatga cagggggnc 480 aaattteeet atgagaanca aaacnggeea eetacageaa aatateaaaa ggggnaagne 540 cttccttcct cttcctccng attatatnca ccatatctcc tttcangact atnatttcca 600 tcaggctnat tccttcacaa atntaaacct tgaggggata tgaaggaacc caacttcngg 660 aaangaaaac tcaattcana aattgaagaa acctggcagg tatacaatac ccccccaggn 720 catnicaana teeetggeac aagnneeaat teagggneet ggtaceagee ecatagaana 780 782

<210> 351 <211> 775 <212> DNA

<213> Homo Sapiens

<400> 351

ggcaaggegg etgetgegaa teaccaaaag aacagggatg aaagaagaga agaacettea 60 ggaaggaaat gaagttgatt ctcagagcag tattagaaca gaagctaaag aggettcagg 120 180 gaagcacatg cagaaacagc aggagagga aaaatcagte ttgacacctc tteggggaga 240 tgtagcatct tgcaataccc aagtggcaga gaaaccagtg ctcactgctg tgccaggaat 300 cacacggcac ctgaccaagc ggcttcccac aaagtcatcc cagaaggtgg aggtagaaac 360 ctcagggatt ggagactcat tattgaatgt gaaatgtgca gcacagacct tggaaaaaaag 420 gggtaaaget aaacccaaag tgaacgtgaa gccatctgtg gttaaagttg tgtcatcccc 480 caaattggcc ccaaaacgta aggcagtgga gatgcacgct gctgtcattg ccgctgtgaa 540 gecactcage tecageagtg tectacagga acceecagee aaaaaggeag etgtggetgt 600 tgtcccgctt gtctctgagg acaaatcagt cactgtgcct gaagcagaaa atcctagaga 660 caqtetttgt gettgnette aacceagtee tinticaqat teettaeeee caqaqqtqte 720 ttggnccttt cttcatncca aatggagcct tgaaaaactt cggccgactt agctt 775

<210> 352 <211> 865 <212> DNA

<213> Homo Sapiens

<400> 352

cctacatcag ttttatttaa aacacaaaca agtatttctc tttctgtaag ggcaaatggt 60 tcaaataatg cggaacacga aacattgact aatacaagtg ctttaaatat gaaacaaaat 120 tattttttaa aaaagcaaaa gaataaagaa tatatacaaa agggacctgg aatctgtaag 180 gtgattccaa aaacgaaata agtagaaaat ccatggtgaa acctgaacat tctacctctg 240 ctttggagaa gggctatcat acaacattca gtcagctgaa gatggattgg tagaggtgtg 300 tetatacata aactteagte attittgett gtgcagaate ateccaatet teccaagact 360 gaatgggcag teetgtgget ttetteettt teeatattee caacaagget acgtgaagtt 420 caactettga tgageegett acaacageag tteettagga gecaacatga caggtgggte 480

agattteect	atgagaaaca	aaactggcca	cctacagcaa	aatatcaaaa	tgggtaagtc	540
			acatatetee			600
			gaggngatat			660
			aagaaaaact			720
			ncacaagtnc			780
			tggaaaaaag			840
ggggggttaa			-55			865
33333	333					
<210>	353					
<211>	875					
<212>	DNA					
<213>	Homo Sapie	ens				
	-					
<400>	353					
gactttccta	catcagtttt	atttaaaaca	caaacaagta	tttctctttc	tgtaagggca	60
aatggttcaa	ataatgcgga	acacgaaaca	ttgactaata	caagtgcttt	aaatatgaaa	120
caaaattatt	ttttaaaaaa	gcaaaagaat	aaagaatata	tacaaaaggg	acctggaatc	180
tgtaagctga	ttccaaaaac	gaaataagta	gaaaatccat	ggtgaaacct	gaacattcta	240
cctctgcttt	ggagaagggc	tatcatacaa	cattcagtca	gctgaagatg	gattggtaga	300
ggtgtgtcta	tacataaact	tcagtcattt	ttgcttgtgc	agaatcatcc	caatcttccc	360
aagactgaat	gggcagtcct	gtggctttct	tccttttcca	tattcccaac	aaggctacgt	420
gaagttcaac	tcttgatgag	ccgcttacaa	cagcagttcc	ttaggagcca	acatgacagg	480
tgggtcagat	ttccctatga	gaaacaaaac	tggccaccta	cagcaaaata	tcaaaatggg	540
			atatacaaca			600
atttccatca	tgcttattcc	ttccaaatct	aaacccttga	ggtgatatga	aggaaaccaa	660
			atgaagaaaa			720
ccccagagca	tcttcaatat	cccctgggca	cagtncccaa	ttcagggact	gggtacaggc	780
			gaataaagcc			840
gggttaaagg	ggccccccaa	accaaaaact	ggggc			875
<210>						
	> 705					
	> DNA					
<213:	> Homo Sapi	ens				
<400	> 354					
		atttaaaaca	canacangta	tttctctttc	tataaaaaa	60
			ttgactaata			120
			aaagaatata			180
			gaaaatccat			240
			cattcagtca			300
			ttgcttgtgc			360
			tccttttcca			420
			cagcagttcc			420
			tggccaccta			540
			tatacnncat			600
			aaccttgagg			660
			ngaaaactgg		yyaaaccaca	705
ccuggaaaag	gadacttaat	cccydaatga	nyaaaactyy	caygu		/05
<210:	> 355					

<211> 862

<212> DNA

<213> Homo Sapiens

<400> 355

acttc

WO 99/04265 PCT/US98/14679

```
ccatcagtga gagcgagctg agcgccagcg ccactgagct gctgcaggac tacatgctga
                                                                       60
cgctgcgcac caagctgtca tcacaggaga tccagcagtt tqcaqcactq ctqcacqagt
                                                                      120
accgcaatgg ggcctctatc cacgagttct gcatcaacct gcggcagctc tacggggaca
                                                                      180
geogeaagtt cetgetgett ggtetgagge cetteatece tgagaaggae agceageact
                                                                      240
tegagaactt cetggagace attggegtga aggatggeeg eggeateate actgacaget
                                                                      300
ttggcaggca ccggcgggcc ctgagcacca catccagttc caccaccaat gggaacaggg
                                                                      360
ccacgggcag ctctgatgac cggtcggcac cctcagaggg ggatgagtgg gaccgcatga
                                                                      420
teteggacat cagcagegac attgaggege tgggetgeag catggaccag gacteagcat
                                                                      480
gatggacagt ggatggggg gcacccacac cttccgcgca gtcgtcatag gccttcccag
                                                                      540
aaggagetge ecagacetge gtgteagece ttggtggtgg ecaggganag gegeeeggtg
                                                                      600
cagatggeee egggeggeee aggteetnta etgtgaagga geagggaget geegagggae
                                                                      660
acgagectea gtgcggggtg gaaggetett tgccttgtcc accagggntc agccaagccc
                                                                      720
tgeagtgtgt coccgetegg ggagggeeeg geegageggg cagggagage cagteetgte
                                                                      780
qqctqqqccc ttggacggct gtcagttttg cacatgatgt tcctattgta actntcaqaq
                                                                      840
accttaaaaa gaagtttact qc
                                                                      862
      <210> 356
      <211> 750
      <212> DNA
      <213> Homo Sapiens
      <400> 356
ccatcagtga gagcgagctg agcgccagcg ccactgagct gctgcaggac tacatgctqa
                                                                       60
egetqegeae caagetgtca teacaggaga tecageagtt tgcageactg etgeaegagt
                                                                      120
accgcaatgg ggcctctatc cacgagttct gcatcaacct gcggcagctc tacggggaca
                                                                      180
geograagtt cetgetgett ggtetgagge cetteatece tgagaaggae ageeageact
                                                                      240
tegagaactt cetggagace attggegtga aggatggeeg eggeateate actgacaget
                                                                      300
ttggcaggca ccggcgggcc ctgagcacca catccagttc caccaccaat gggaacaggg
                                                                      360
ccacgggcag ctctgatgac cggtcggcac cctcagaggg ggatgagtgg gaccgcatqa
                                                                      420
tctcggacat cagcagcgac attgaggcgc tgggctgcag catggaccag gactcagcat
                                                                      480
gatggacagt ggatgggggg gcacccacac cttccgcgca gtcgtcatag gccttcccag
                                                                      540
aaggagetge cagacetgeg tgtcaaceet tggtggtgge cagggagagg cgcceggtge
                                                                      600
agatggcccc gggccggccc aagtcctcta ctgtgaagga acagggagct tgccgangga
                                                                      660
cacgaacete aatgeegggg tggaangete tttggettgt ccaccaagge ttageecage
                                                                      720
ccttqcaatq nqqccccqct tcqqqqaaqq
                                                                      750
      <210> 357
      <211> 725
      <212> DNA
      <213> Homo Sapiens
      <400> 357
gcagtaaact tctttttaag gtctctgana gttacaatag gaacatcatg tgcaaaactg
                                                                       60
acageegtee aagggeecag eegacaggae tggeteteee tgeeegeteg geegggeeet
                                                                      120
ccccgagcgg ggacacactg cagggettgg etganceetg gtggacaagg caaagageet
                                                                      180
tecaececge actgaggete gtgteceteg geagetecet geteetteac agtanaqqae
                                                                      240
ctgggccgcc cggggccatc tgcaccgggc gcctntccct ggccaccacc aaqqqctqac
                                                                      300
acgcaggtct gggcagctcc ttctgggaag gcctatgacg actgcgcgga aggtgtgggt
                                                                      360
geocecccat ccaetgteca teatgetgag teetggteca tgetgeagee cagegeetea
                                                                      420
atgtcgctgc tgatgtccga natcatgcgg tcccactcat ccccctctga gggtgccgac
                                                                      480
cggtcatcag agctgcccgt ggccctgttc ccattggtgg tggaactgga tgtggtgctc
                                                                      540
agggecegee ggtgcctgcc aaagetgtca gtgatgatge egeggecate ettnacgeca
```

atggtetnca ggaagttete gaantgetgg etgneetttn teagggatga anggeettan

accaagcagc anggaacttg eggnttntcc ecgaaaanct tgcencaggt tgatgcaaaa

600

660

720

725

<210> 358 <211> 813 <212> DNA <213> Homo Sapiens

<400> 358

aaggegacag etgeccatte egteactgtg aagetgeaat aggaaatgaa aetgtttgea 60 cattatggca agaagggcgc tgttttcgac aggtgtgcag gtttcggcac atggagattg 120 ataaaaaacg cagtgaaatt ccttgttatt gggaaaatca gccaacagga tgtcaaaaat 180 taaactgcgc tttccatcac aatagaggac gatatgttga tggccttttc ctacctccga 240 gcaaaactgt gttgcccact gtgcctgagt caccagaaga ggaagtgaag gctagccaac 300 tttcagttca gcagaacaaa ttgtctgtcc agtccaatcc ttcccctcag ctgcqqaqcq 360 ttatgaaagt agaaagttcc gaaaatgttc ctagccccac gcatccacca gttgtaatta 420 atgctgcaga tgatgatgaa gatgatgatg atcagttttc tgaggaaggt gatgaaacca 480 aaacacctac cetgcaacca acteetgaag tteacaatgg attacgagtg acttetqtee 540 ggaaacctgc agtcaatata aagcaaggtg aatgtttgaa ttttggaata aaaactcttg 600 aggaaattaa gtcaaagaaa atgaaqgaaa aatctaagaa gcaaggtgag ggttcttcag 660 gagtttccag tcttttactt caccettgag ccccgntcca ngtcctgaaa aagaaaatgt 720 caaggactgt ggtgangaca gtactntttt caccaaccaa ggagaagaac ccttggttag 780 atgagtetta etgagagaet ggggaaacca aaa 813

<210> 359 <211> 756 <212> DNA

<213> Homo Sapiens

<400> 359

cagcagagga gaggcagagg ataaaagagg aagagaaaag ggcagcagag gagaggcaaa gggccagggc agaggaggaa gagaaggcta aggtagaaga gcagaaacgt aacaagcagc 120 tagaagagaa aaaacgtgcc atgcaagaga caaagataaa aggggaaaag gtagaacaga 180 aaatagaagg gaaatgggta aatgaaaaga aagcacaaga agataaactt caqacaqctq 240 tcctaaaqaa acaqqqaqaa qaqaaqqqaa ctaaaqtqca aqctaaaaqa qaaaaqctcc 300 aagaaqacaa gootacotto aaaaaagaag agatcaaaga tgaaaagatt aaaaaggaca 360 aagaacccaa agaagaagtt aagagcttca tggatcgaaa gaagggattt acagaagtta 420 agtogoagaa tggagaatto atgaccoaca aacttaaaca tactgagaat actttcagco 480 gccctqqaqq qaqqqccaqc qtqqacacca aqqaqqctqa qqqqqcccc caqqtqqaaq 540 coggcaaaag getggaggag ettegtegte gtegegggga gaeegagage egaagagtte 600 gagaagctca aacagaagca gcaggaggcg gctttggagc tggaggaact caaggaaaaa 660 ganggaggag agaaggaagg tootgganga qqaaqaqcaq aqqaaqqaac aqqaqqaaaq 720 ccqatcggaa aaccttcaag aggaggaaga agaaga 756

<210> 360 <211> 706 <212> DNA

<213> Homo Sapiens

<400> 360

aatttotto atgotttatt ataaagmgca naaacaacat gacttotgta tttaaaaaaa 60
caaaaaactac ggttcatttt totagatact gcacacattc ogcaggcaat tttaaactgt 120
gatottotgt tgacttoana tgnggttggt atcactgotc aaatacaagag ttatgatgat 180
cagtanaaaa gtotntattt cacagcatgg gtttotttan aaacaggotc otgngcaaaag 240
gcagtacttt taccatgaac atchtanac tgggattatt aaataaagm ataatacac 300
tgggtttact gggatattga aaaataaaag ataatgaacc caattagta aatcaacata 360
aatacaaaaa agagcgaatt agocotniac aactgagotc gtootgotgot tgagottyg
tttottottg gaactgtotc aaacctaag ggggaagtg acctatacca canattgott 480

ttccagagg ttccgcttge tggataccgt ctcctggnct cac caggtgactt gtttccatct ggggttttaa gttagccatt cat cctaccttta agccagcagt ttnccttatt tgggggngc ctc aaacncattt cctttntcca catactcttg aaggttgcgg tac	ttgatgcg gctagaaacc 600 gctgcant ggggggatga 660
<210> 361 <211> 726 <212> DNA <213> Homo Sapiens	
<400> 361	
gecatgetac gegegetgag eegectggge geggggacee egt	tgcaggcc ccgggcccnt 60
ctgntgctgc cagcgcgcgg ccgcaagacc cgccacgacc cgc	
gagegagtga acatgeegee egeggtggae eetgeggagt tet	ttegtget gatggagegt 180
taccagcact accgncagac cgtgcgcgcc ctcaggatgg and	ttcgtgtc cgaggtgcat 240
aggaaggtgc acgaggcccg agccggngtt ctggcgganc gca	
gccgagcacc gcnagctgat ggcctggaac caggcggaga acc	
eggatagega ggetgeggea ggagganegg nageaggage agt	
gcccgcaagg ccgaagaggt gcangcctgg gcgcagcgca agg	gagcgnga antgetgeag 480
ctgcagnaag aggtgaaaaa cttcatcacc cgagagaacc tgg	gaggcacg ggtggaagca 540
gcattggact cccggaagaa ctacaactgg gccatcacca gag	
ccacaacgca nggacttcta agggcccagt aaggacagtg cc	
tatcatggcg gaagagttgc ccttgactgg aattaaagca att	
aaggtt	726
<210> 362 <211> 747 <212> DNA <213> Homo Sapiens	
<400> 362	
	tatottna tnogaocoat 60
gcaggaagga attccattna ttggggatgc attttcacaa ta	tatgttna tnggagcgat 60 gaanggca nattcacaga 120
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt agg	gaanggca nattcacaga 120
gcaggaagga attccattna ttggggatgc attttcacaa ta	gaanggca nattcacaga 120 anaattat agncaaacca 180
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaatttt agg acatgctagt cagctngcag ttttacctcg taaagatanc aga	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagtanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcagcagga at tanattttnt anaaaaatat gtaatagnga tcaggaggag ct aaagcaangt taccttacca taggccttaa ttcaaaacttt ga	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccanga 420
gcaggaagga attocattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaaa tg aacttactcc atccaaatat tggaataaaa gtcagcagga st tanattttnt anaaaaatat gtaatagnga tcaggaggag c aaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctg gcacattgta ttcaaattc	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaag gtcagcaggg ac tanatttnt anaaaaatat gtaataagga caggaggag ci aaagcaangt taccttacca taggccttaa ttcaaactt ga cgggagtcaa ngctacctg gcacattgta tttgtaaatt cc cttgggccta ctttgncatg agggtttgac ttcngcattn tt	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 420 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 cggggntt tccttccttt 540
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcagcaggg at tanattttnt anaaaaatat gtaatagnga tcaggaggag ct aaagcaangt taccttacca taggccttaa ttcaaaacttt g cgggagtcaa ngctacctgg gacacttgta tttgtaaatt ct cttgggccta ctttgncatg agggtttgac ttcngcattn tc ggcttaggtt tgctaaagct agaanattca attgctcttt ac	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 cggggntt tccttccttt 540 agacttat gaggaanata 600
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcagcaggg at tanatttnt anaaaaatat ggaataagg tcaggaggag ct aaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctgg gacacttgta tttgaaatt ct cttgggocta ctttgncatg agggtttgac ttcngcattn tc ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanatgt actttatatg caggcctgc	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 420 itccatttc actccaanga 420 igatttagc ttatngtaaa 480 cggggntt tccttctt 540 agacttat gaggaanata 600 itggttagg otttctggag 660
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaag gtcagcaggg at tanatttnt anaaaaatat gtaataanga tcagcaggag ac taaagcaangt taccttacca taggccttaa ttcaaactt ga cgggagtcaa ngctacctgg gcacattgta ttcgtaaatt ct ggcttaggtt tgctaaagct agaanattca attgccctta ac gactttgtaa cgcanatgtc acttttaatg ccagccctg gaatactgca gataagaaaa atagttattt gggaggstcc ct	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcagcaggg at tanatttnt anaaaaatat ggaataagg tcaggaggag ct aaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctgg gacacttgta tttgaaatt ct cttgggocta ctttgncatg agggtttgac ttcngcattn tc ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanatgt actttatatg caggcctgc	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaaaat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 420 itccatttc actccaanga 420 igatttagc ttatngtaaa 480 cggggntt tccttctt 540 agacttat gaggaanata 600 itggttagg otttctggag 660
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag gyaaaagtat caagggttna taaaattttt agg acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcagcaggg at tanatttnt anaaaaatat gtaatagnga tcaggaggag ct aaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctgg gcacttgta tttgtaaatt ct gcttaggtt tgctaaagct agggtttgac ttcngcattn tt ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanafgtc acttttatatg cagcctgc cc gaatactgca gataagaaa atagttatt gggaggctc ct gggactaacc ncaatttng gttaaag	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaag gtcagcaggg at tanatttnt anaaaaatat gtaataanga tcagcaggag ac taaagcaangt taccttacca taggccttaa ttcaaactt ga cgggagtcaa ngctacctgg gcacattgta ttcgtaaatt ct ggcttaggtt tgctaaagct agaanattca attgccctta ac gactttgtaa cgcanatgtc acttttaatg ccagccctg gaatactgca gataagaaaa atagttattt gggaggstcc ct	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attocattna ttggggatgc attttcacaa ta ccattateag ggaaaagtat caagggttna taaaatttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaaa tg aacttactcc atccaaatat tggaataaaa gtcagcagga ct tanattttnt anaaaaatat gtaatagnga tcaaggaggag ct aaagcaangt taccttacca taggccttaa tccaaacttg ga cgggagtcaa ngctacctgg gacacttgta ttcgtaaatt ct cttgggccta ctttgncatg agggtttgac tcngcattn tc ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanatgtc actttatatg cagcctgc cc gaatactgca gataagaaaa atagttattt gggaggctce ct gggactaacc ncaatttng gttaaag	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaac tg aacttactcc atccaaatat tggaataaaa gtcaggagga at tanattttnt anaaaaatat ggaataagg tcaggaggag at taaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctgg gacacttgta tttgaaatt ct cttgggccta cttgncatg aggstttgac ttcngcattn tt ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanatgtc acttttaatg ccagccctgc cc gaatactgca gataagaaaa atagttattt gggaggctcc ct gggactaacc ncaattttng gttaaag <210> 363 <211> 1227	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attccattna ttggggatgc attttcacaa ta ccattatcag gyaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatanc ag gtaaacangg aattnacttt tcaaaagatt aaatccaaat tg aacttactcc atccaaatat tggaataaaa gtcagcaggg at tanatttnt anaaaaatat gtaatagnga tcaggaggag ac aaagcaangt taccttacca taggccttaa ttcaaacttt ga cgggagtcaa ngctacctgg gacacttgta ttcgaaatt cg cttgggccta ctttgncatg aggstttgac ttcngcattn tt ggcttaggtt tgctaaagct agaanattca attgctcttt ac gactttgtaa cgcanafgto actttatatg cagcctgc c gaatactgca gataagaaa atagttatt gggaggctcc ct gggactaacc ncaatttng gttaaag <210> 363 <211> 1227 <222> DNA	gaanggca 120 anaattat agncaaacca 180 ancaatat thtaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 360 tccatttc actccaanga 420 gatttagc ttatngtaaa 480 ceggggntt ttccttcttt 540 acacttat gaggaanata 600 teggttagc ncttctggag 660 cagngggg tanggaattg 720
gcaggaagga attocattna ttggggatga attttcacaa tarcatattatag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatan ag gtaaacangg aattnacttt tcaaaagattn aattacttca atcaaaatt tgaataaaa gtaacaagag attaaattttnt anaaaaatat gtaatagnga tcaaggaggag ctaaagcaangt taccttacca taggccttaa ttcaaacttt ga cggagatcaa ngctacctgg gacacttgta ttcgtaattt cttgggcta ctttgncatg agggtttgac tcngcattn ttggcttaggt tgctaaggt agcaatagta acgcatagta attgtattt ggctataggt tgctaagac agaatactg agaanattca attgctcttt acgacttgtaa cgcanatgta acttttaatg gggactaac ncaatttng gttaaag	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaatat tntaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 420 gatttagc ttatngtaaa 480 cegggmtt ttccttcttt 540 aagacttat gaggaanata 600 teggttagc ncttctggag 660 ccagngggg tanggaattg 720 747
gcaggaagga attccattna ttggggatgc attttcacaa tacccattatcag ggaaaagtat caagggttna taaaattttt agacatgcttagt cagctngcag ttttacctcg taaagatanc aggtaaacangg aattnacttt tcaaaagattn aaatccaaaa tgaactacatcc atccaaaatat tggaataaaa gtcagaagga cttaaattttnt anaaaaatat gtaatagnga toaggaggagcttaaaggcaangt taccttacca taggccttaa ttcaaacttt gacggggatcaa ngctacctgg gacacttgta tttgaaatt cgcgggatcaa ngctacctgg gacacttgta tttgaaatt ctcttggccta cttgncatg agggtttgac ttcngcattn ttggcttaggtt tgctaaagct agaanattca attgctctt acggcttgac tggaatttgac gatatgaaaa atagttatt gggagggccc cagatacacac ncaattttng gttaaag	gaanggca nattcacaga 120 anaattat agncaaaca 180 ancaaaat tntaccctaa 240 ncattch ttctgaactt 300 nttgttca aaagtncaac 420 stccattc actccaanga 420 gatttagc ttatngtaaa 480 cggggntt tccttccttt 540 agacttat gagaanata 600 tcggtggagnt tcctcagag 660 ccagngggg tanggaattg 720 747
gcaggaagga attocattna ttggggatga attttcacaa tarcatattatag ggaaaagtat caagggttna taaaattttt ag acatgctagt cagctngcag ttttacctcg taaagatan ag gtaaacangg aattnacttt tcaaaagattn aattacttca atcaaaatt tgaataaaa gtaacaagag attaaattttnt anaaaaatat gtaatagnga tcaaggaggag ctaaagcaangt taccttacca taggccttaa ttcaaacttt ga cggagatcaa ngctacctgg gacacttgta ttcgtaattt cttgggcta ctttgncatg agggtttgac tcngcattn ttggcttaggt tgctaaggt agcaatagta acgcatagta attgtattt ggctataggt tgctaagac agaatactg agaanattca attgctcttt acgacttgtaa cgcanatgta acttttaatg gggactaac ncaatttng gttaaag	gaanggca nattcacaga 120 anaattat agncaaacca 180 ancaattat thaccctaa 240 ncattctn ttctgaactt 300 nttgttca aaagtncaac 420 sattcattca ctcaanga 420 gatttagc ttatngtaaa 480 cggggntt tccttctt 540 agacttat gaggaanata 600 cagngggg tanggaattg 720 cagngggg tanggaattg 747

```
aagatogtoa tgoactacac atggattaca tacttgtaaa cogtgaagaa aattcacact
                                                                      300
caaagccaga gacctgtgaa gaaagagaaa gcatagctga attagaattg tatgtaggtt
                                                                      360
ccaaagaaac agggctgcag ggaactcagt tagcaagctt cccaqacaca tqtcaqccaq
                                                                      420
cctccttaaa tgaaaqaaaa qqtctctctq caqaqaaaat qtcttctaaa qqcqatacqa
                                                                      480
gatcatcttt tgaaageest geacaagass agagttggat gttettgggs catagtgagg
                                                                      540
ttggtgatcc atcactggat gccagggact cagggcctgg gtggtctggc aagactgtgg
                                                                      600
agccgttctc tgaactcggc ttgggtgagg gtccccagct gcagattctg gaagaaatga
                                                                      660
agectetaga atetttagea etagaggaag eetetggtee agteageeaa teacagaaga
                                                                      720
gtaagagccg aggcagggct ggcccggatg cagttaccca tgacagtgaa tgggaaatgc
                                                                      780
tttcaccaca gcctgttcag aaaaacatga tccctgacac ggaaatggag gaggagacag
                                                                      840
agttccttga gctcggaacc aggatatcaa gaccaaatgg actactgtca qagqatgtaq
                                                                      900
gaatggacat cccctttgaa gagggcgtgc tgagtcccag tgctgcagac atgaggcctg
                                                                      960
aacctcctaa ttctctggat cttaatgaca ctcatcctcg gagaatcaag ctcacagccc
                                                                     1020
caaatatcaa tetttetetg gaccaaagtg aaggatetat tetetetgat gataactttg
                                                                     1080
gacagtecag atgaaattga catcaatgtg gatgaacttg atacccccga tgaagcagat
                                                                     1140
tettttgagt accetggece atgaagaate ccacaqeeac aaaqattetq qeecaaqaaq
                                                                     1200
tcagagtcta tttcnggaat ataccqq
                                                                     1227
      <210> 364
      <211> 831
      <212> DNA
      <213> Homo Sapiens
      <400> 364
ctgacatcta caccgaggtc cgcgagctgg tgagcctcaa gcaggagcag caggctttca
                                                                       60
aggaggegge cegacaegga geggetegee etgeaggeee teaeggagaa getteteagg
                                                                      120
tetgaggagt cegteteeeg ceteeeggag gagateegga gaetggagga agageteege
                                                                      180
cagctgaagt ccgattccca cgggccgaag gaggacggag gcttcagaca ctcggaagcc
                                                                      240
tttgaggcac tccagcaaaa gagtcaggga ctggactcca ggctccagca cgtggaggat
                                                                      300
ggggtgctct ccatgcaggt ggcttctgcg cgccagaccg agagcctgga gtccctcctg
                                                                      360
tecaagagee aggageacga geagegeetg geegeeetge aggggegeet ggaaggeete
                                                                      420
gggtcctcag aggcagacca ggatggcctg gccagcacgg tgaggagcct ggqcqaqacc
                                                                      480
cagetggtge tetaeggtga egtggaggag etqaagagga gtqtgggega geteeceaqe
                                                                      540
accogtggaa tcactccaga aggtgcagga acaqqtqcac acqctqctca qtcaqqacca
                                                                      600
ageccaggec egeogtetge etteteagga etttetggae agaetttett etetagaeaa
                                                                      660
cctgaaagcc tcagtcaggc cagtggaagc cggacttgaa aatgctcaag aactgctgtg
                                                                      720
gacaagttgg gtgcataact cggtcaaaat tagaaaccaa cgagnacaat tttggaatca
                                                                      780
agcccanggt tactagatga ccttggggaa tgatcnggat aggttgtttg t
                                                                      831
      <210> 365
      <211> 785
      <212> DNA
      <213> Homo Sapiens
      <400> 365
acttgaaatc tgccagccag acaggatttc tgaggttaat ctgcttctgt taatcctcaa
                                                                       60
tttaagcctt tatcattttt ctctgactag agacatccat gaaaagccac ctgttattca
                                                                       120
caggggctgc gcttcaggaa accaaccaaa tgcagaagca gagaacttaa atattgtaaa
                                                                       180
taagttaact gggcatgaaa atacaatgcc ttggtgttca ggtggtgaca actgctcttt
                                                                       240
aagaqgggac aagaaattqq qqqqtaqqqq acacatqqqa aaaaaccaca cattttttqq
                                                                       300
tcatgagaaa ttggacttta aatccgcgcc ctgcacacgc aattcattta gaccttttcq
                                                                       360
```

420

480

540

600

tgaatcttet ccactttcac aaacaaceta tecagatcat teetcaggte atetagtaaa

cccttggctg attecagatt gttctcgttg gtttctattt tqaccqaqta tqcaaccaaa

ctgtccacag cagtcctgag cattttcaag tccgcctcca cttggctgac tgaggctttc

aggttgtcta gagaagaaag tctgtccagg aagtcctgag gaggcagacg ggcggcctgg

WO 99/04265 PCT/US98/14679

gettggteet gaetgageag egtgtgeace tgeteetgee etttetggga gtgattecae 660

ggtgctgggg agctngccca cacttcctct t	cagettett ceaegteace egtaaaagea 720
cccagctggg tctcgnccaa gcttcntacc g	rtgetgggee aggeecatee tggnetgget 780
tttga	785
<210> 366	
<211> 816	
<212> DNA	
<213> Homo Sapiens	
<400> 366	
gtcagccagc ctccttaaat gaaagaaaag g	tetetetge agagaaaatg tettetaaag 60
gcgatacgag atcatctttt gaaagccctg c	acaagacca gagttggatg ttcttgggcc 120
atagtgaggt tggtgatcca tcactggatg c	cagggactc agggcctggg tggtctggca 180
agactgtgga gccgttctct gaactcggct t	gggtgaggg tccccagctg cagattctgg 240
aagaaatgaa goototagaa totttagcac t	agaggaage etetggteea gteageeaat 300
cacagaagag taagagccga ggcagggctg g	cccggatgc agttacccat gacagtgaat 360
gggaaatgct ttcaccacag cctgttcaga a	aaacatgat ccctgacacg gaaatggagg 420
aggagacaga gttccttgag ctcggaacca g	gatatcaag accaaatgga ctactgtcag 480
aggatgtagg aatggacatc ccctttgaag a	gggcgtgct gagtcccagt gctgcagaca 540
tgaggcctga acctcctaat tctctggatc t	taatgacac tcatcctcgg agaatcaagc 600
tcacagccc aaatatcaat ctttctctgg a	ccaaagtga aggatctatt ctctctgatg 660
ataactttgg acagtccaga tgaaattgac a	tcaatgtgg atgaacttga tacccccgat 720
gaagcagatt cttttgagta ccctggccca t	
cccaagaagt cagagtctat ttcnggaata t	accgg 816
<210> 367	
<211> 803	
<212> DNA <213> Homo Sapiens	
<212> DNA <213> Homo Sapiens	
<213> Homo Sapiens <400> 367	.aqtqaqqc aaaaqttaga aaactgataa 60
<213> Homo Sapiens <400> 367 aaaagaacca tggaagttct cctgaacagg t	agtgaggcc aaaagttaga aaactgataa 60 itaataqqca tqaqqcgaaa caaaqaaqtg 120
<213> Homo Sapiens <400> 367 aaaagaacca tggaagttct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t	taataggca tgaggcgaaa caaagaagtg 120
<pre><213> Homo Sapiens <400> 367 aaaagaacca tggaagttct cctgaacagg t gttcaagca ggtggaccaa gaaacaggtt t ttcaaagatg gagagaggtt ttggaagttg a</pre>	taataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180
<pre><213> Homo Sapiens <400> 367 aaaagaacca tggaagttct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagagagct ttggaagttg a aatgtgaaga atatgatgga gagcatgact g</pre>	taataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatecacca tactcaagag 240
<213> Homo Sapiens <400> 367 aaaaagaacca tgaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt ttcaaagatg gagagaggct ttggaagttg a aatgtgaag atatgaacg gagaataacc a ttattacaca aagggaaaca gaaaataacc a	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 (tatgttctt ggatccacca tactcaagag 240 kaatgacatc agaaagtgga gccacagcag 300
<213> Homo Sapiens <400> 367 aaaagaacca tggaagttot octgaacagg tgttcaagca ggtggaccaa gaaacaggtt ttcaaagatg gagaaggct ttggaagttg aaatgtgaaga atatgatgga gagcatgact gtattacaca aagggaaaca gaaaataacca gaaagacaaga agtggataaa accttttgga a	itaataggca tgaggcgaaa caaagaagtg 120 uggaaagtgg ctcagatgac ctcttaataa 180 utatgttett ggatccacca tactcaagag 240 uaatgacatc agaaagtgga gccacagcag 300 ttggctgtgg agattattac caactctatg 360
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattet cetgaacagg tgtteaagca ggtggaccaa gaaacaggtt tteaaagatg gagagaget ttggaagttg aaatgtgaaga atatgatgga gagcatgact gtattacacca aagggaaaca gaaaataacc agaaggcaaga agtggataac acettttgga aacaagatga agtagtett gaatgcagtg agtettettgg tacagaaaaa gatcaatect cgattettgg tacagaaaaa gatcaatect c	ttaataggca tgaggcgaaa caaagaagtg 120 (ggaaagtgg ctcagatgac ctcttaataa 180 (gtatgttatt ggatccacca tactcaagag 240 (aatgacatc agaaagtgga gccacagcag 360 (tggstgtgg agattattac caactctatg 360 (ttggggaatg gtctgcttct ttgcctcatc 420 (aagtgatga aagstggag actctgcca 480
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattet cetgaacagg tgtteaagca ggtggaccaa gaaacaggtt tteaaagatg gagagaget ttggaagttg aaatgtgaaga atatgatgga gagcatgact gtattacacca aagggaaaca gaaaataacc agaaggcaaga agtggataac acettttgga aacaagatga agtagtett gaatgcagtg agtettettgg tacagaaaaa gatcaatect cgattettgg tacagaaaaa gatcaatect c	ttaataggca tgaggcgaaa caaagaagtg 120 (ggaaagtgg ctcagatgac ctcttaataa 180 (gtatgttatt ggatccacca tactcaagag 240 (aatgacatc agaaagtgga gccacagcag 360 (tggstgtgg agattattac caactctatg 360 (ttggggaatg gtctgcttct ttgcctcatc 420 (aagtgatga aagstggag actctgcca 480
<213> Homo Sapiens <400> 367 aaaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt ttcaaagatg gagagaggct ttggaagttg a aatgtgaaga atatgatgga gagactgact gtattacaca aagggaaaca accttttgga a acaaagatga agatagttct gaatcagtg a gattttctgg tacagaaaa gatcaatcct c gaaaagatga gaatgaacct gagctacaaa gagattattc tcttcaggaa gggaaagaa ggaaagaa t	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 taatgtacatc agaaagtgga gccacagcag 300 ttggctgtgg agattattac caactctatg 360 ttggcggaatg gtctgcttet ttgcctact 422 taagtgatga aagctggag actctgccag 480 ttccttgga tggccctgaa gaagaaaacc 544 tatccttgga agaggagaa attccttggt 600
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattet cetgaacagg t gtteaagcag ggtggaccaa gaaacaggtt t tecaaagatg gagagaget ttggaagttg a aatgtgaaga atatgatgga gagcatgaac gtaatacac a gaaggcaaga agtggataac accttttgga a acaaagatga agatagtett gaatgcagtg a gattettetgg tacagaaaa gatcaatect cgaaagatga gaatgaacct gagctacaaa gagaattatte tettcaggaa gaggaacaga gagaactaca tgaagtcaat gaagcagca g acaagcaga gagaacaga gagaacagagaga gagaacagagaga gagaacagagagag	ttaataggca tgagggaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 laatgacatc agaaagtgga gcacaggcag 300 ltggggaatg agattatac caactctatg 360 ltggggaatg gtctgcttet ttgcctcatc 420 laagtgatga aagctgggag actctgccag 480 gtgtatagcag tggccctgaa gaagaaaacc 544 laatcttgga agaggagaa attccttggt 600 gtgatagcag gaaatgaacc tgccaatgaa 660
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagaagact ttggaagtg a aatgtgaaga atatgatgga gagcatgact gtattacaca aagggaaaca gaaaataacc a gaaggcaaga agtgatact gagttattctgg acaagaagatg agatgatct gaatcact gagttctctgg tacagaaaagatga gaatgaact gagctacaaa gagaattatc tcttcaggaa ggggaacaga ctacagtacaa tcatcatcat cttcaggaa ggggaacaga ctacagtacaa tgaagtcata gaagagaga ctacagtacaa tgaagtcata gaagagga cagtagga cagctacaag cagctacaa gtagagaga cagctacaag cagctacaa gtagaagaga cagctacaag cagctacat gttggatggg a	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 kaggcgaagtg gattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 420 kaatgatga aagctgggag acttctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 440 ktgatagcag agagggaaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagaagact ttggaagtg a aatgtgaaga atatgatgga gagcatgact gtattacaca aagggaaaca gaaaataacc a gaaggcaaga agtgatact gagttattctgg acaagaagatg agatgatct gaatcact gagttctctgg tacagaaaagatga gaatgaact gagctacaaa gagaattatc tcttcaggaa ggggaacaga ctacagtacaa tcatcatcat cttcaggaa ggggaacaga ctacagtacaa tgaagtcata gaagagaga ctacagtacaa tgaagtcata gaagagga cagtagga cagctacaag cagctacaa gtagagaga cagctacaag cagctacaa gtagaagaga cagctacaag cagctacat gttggatggg a	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 kaggcgaagtg gattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 420 kaatgatga aagctgggag acttctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 440 ktgatagcag agagggaaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattet cetgaacagg t gtteaagcag ggtggaccaa gaaacaggtt t tecaaagatg gagagaget ttggaagttg a aatgtgaaga atatgatgga gagcatgaac gtaatacac a gaaggcaaga agtggataac accttttgga a acaaagatga agatagtett gaatgcagtg a gattettetgg tacagaaaa gatcaatect cgaaagatga gaatgaacct gagctacaaa gagaattatte tettcaggaa gaggaacaga gagaactaca tgaagtcaat gaagcagca g acaagcaga gagaacaga gagaacagagaga gagaacagagaga gagaacagagagag	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 kaggcgaagtg gattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 420 kaatgatga aagctgggag acttctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 440 ktgatagcag agagggaaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660
<213> Homo Sapiens <400> 367 aaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagagaggct ttggaagttg a aatgtgaaga attgatgga gagcatgact sttattacaca aagggaaaca gagaataacc a gaaggcaaga agtggataac accttttgga a acaaagatga agtgatact gaatcagtg ggtttctgga aagaattatct gaatagatg aggcaaga gggaacaga ctacagtacaa tgaagatattatc tcttcagga agggacaaga ctacagtacaa tgaagtcaca tagatgtacaa tgaagtcaca tagatgtaga agggacaga cttgagtagag ttggaaggc aggtttctat gttggaaggt aagtgaaga ttagatgtg attggagct agttgctggaa gctttttcat agttggagct agttgctggaa gctttttcat agtggagct agttgctggaa gctttttcat aag	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<213> Homo Sapiens <400> 367 aaaagaacca tggaagttot cotgaacagg tgttoaagcag ggtggacaa gaaacaggtt ttoaaagatg gaggaggot ttggaagttg aatgtgaaga atatgatgga gagcatgact gtattacacca aagggaaaca gaaaataacc agaaggcaaga agtggataac accttttgga aacaagatga gaatgattot gaatgcagtg a gattttctgg tacagaaaaa gatcaacatct cgaaaagatga gaatgaacct gagctacaaa gagaatattot tottcaggaa ggggaacaga ctacagtacaa tgaagtcaat gaaagcaga ctttgcacagc cagcttcat gttggatggt aaagtgaact tagatgttgg attggatggt atgtgctgaa gcttttcat aag <210> 368	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<pre><213> Homo Sapiens </pre> <pre><400> 367 aaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtygaccaa gaaacaggtt t ttcaaagatg gagagaggt ttggaacag t ttgtaaga atatgatgga gagcatgact g tattacaca aagggaaaca gaaaataacc a gaaggcaaga agtggataac accttttgga a acaaagatga agatgattt gaatgcagt g gatttctgg tacagaaaaa gatcaatcct gaaagatga gaatgaacct gagctacaaa g aagaattatc tcttcaggaa ggggaacaga c tacagtacaa tgaagtcaat gaagcacaga g tttgcacagc cagctttcat gttggatggt a aagtgaaga gcttttcat gttggatggt a gttgctggaa gcttttcat aag </pre> <pre><210> 368</pre> <211> 809	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<pre><213> Homo Sapiens <400> 367 aaaagaacca tgaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagagaggct ttggaagttg a aatgtgaaga atatgatgga gagcatgact g ttattacaca aagggaaaca gaaacaacac a gaaggcaaga agtggataac accttttgga a gattttctgg tacagaaaaa gatcaatcct c gaaaagatga gaatgaacct gagctacaaa g aagaattatc tcttcaggaa ggggaacaga c tacagtacaa tgaagtcaat gatgacaga c tacagtacaa tgaagtcata gttggatgg a aagtgaagac tattttcat gttggagct a agtggaaga ttagatcta gttggatgg a gttgctggaa gctttttcat aag <210> 368 <211> 809 <212> DNA</pre>	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<pre><213> Homo Sapiens </pre> <pre><400> 367 aaaagaacca tggaagattct cctgaacagg t gttcaagcca ggtygaccaa gaaacaggtt t ttcaaagatg gagagaggt ttggaacag t ttgtaaga atatgatgga gagcatgact g tattacaca aagggaaaca gaaaataacc a gaaggcaaga agtggataac accttttgga a acaaagatga agatgattt gaatgcagt g gatttctgg tacagaaaaa gatcaatcct gaaagatga gaatgaacct gagctacaaa g aagaattatc tcttcaggaa ggggaacaga c tacagtacaa tgaagtcaat gaagcacaga g tttgcacagc cagctttcat gttggatggt a aagtgaaga gcttttcat gttggatggt a gttgctggaa gcttttcat aag </pre> <pre><210> 368</pre> <211> 809	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<pre><213> Homo Sapiens <400> 367 aaaagaacca tgyagaccaa gaaacaggtt t ttcaaagattg gagagaggct ttggaagttg t ttcaaagattg gagagaggct ttggaagttg a aatgtgaaga atatgatgga gagactgact g ttattacaca aagggaaaca gaaaataacc a gaaggcaaga agtggataac accttttgga a acaaagatga agatagttc gaatgcagtg a gattttctgg tacagaaaaa gatcaatcct c gaaagatga gaatgaacct gagctacaaa g aagaattatt tcttcaggaa ggggaacaga c tacagtacaa tgaagtcaat gaaagcaga g tttgcacagc cagctttcat gttggatggt a aagtgaagac ttagatggg attggagct a gttgctggaa gcttttcat gttggatggt a agtgctgaa gcttttcat gttggatggt a c210> 368 <211> 809 <212> DNA <213> Homo Sapiens</pre>	ttaataggca tgaggcgaaa caaagaagtg 120 ggaaagtgg ctcagatgac ctcttaataa 180 gtatgttett ggatccacca tactcaagag 244 kaatgacatc agaaagtgga gccacagcag 300 ktggctggg agattattac caactctatg 360 ktggggaatg gtctgcttet ttgcctcatc 422 kaatgadga aggctggag actctgccag 480 ktgatagcag tggccctgaa gaagaaaacc 540 katccttgga agagggagaa attccttggt 600 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagaagg gaaatgaacc tgccaatgaa 660 ktgatagacc tggangatga cttccgtgtg 720 ktttgtagg ctttcgcaatg 736
<pre><213> Homo Sapiens <400> 367 aaaagaacca tgaagattct cctgaacagg t gttcaagcca ggtggaccaa gaaacaggtt t ttcaaagatg gagagaggct ttggaagttg a aatgtgaaga atatgatgga gagcatgact g ttattacaca aagggaaaca gaaacaacac a gaaggcaaga agtggataac accttttgga a gattttctgg tacagaaaaa gatcaatcct c gaaaagatga gaatgaacct gagctacaaa g aagaattatc tcttcaggaa ggggaacaga c tacagtacaa tgaagtcaat gatgacaga c tacagtacaa tgaagtcata gttggatgg a aagtgaagac tattttcat gttggagct a agtggaaga ttagatcta gttggatgg a gttgctggaa gctttttcat aag <210> 368 <211> 809 <212> DNA</pre>	ttaataggca tgagggaaa caaagaagtg (ggaaagtgg ctcagatgac ctcttaataa 186 (gtatgttett ggatccacca tactcaagag 244 (laatgacatc agaaagtgga gcacaggcag ttaggtgtgg agattattac caactctatg 36 ttaggsgaatg gtctgcttet ttgctcatc tagatgaatg gtctgcttet ttgctcatc tagatgaatg agctggag actctgccag 486 ttgatgagaa tggcctgga gaagaaaacc 544 ratccttgga agaggagaa attccttggt 600 rigatgaagg gaaatgaacc tgccaatgaa 660 tigatgaaga gaaggagaa cttccggtg 726 titttgatgaagg gaaatgaacc tgccaatgaa 660 tigatgaagg caatgaac tgccaatgaa 680 acaataacc tggangatga cttccgtgt 726 tittttgatgg ctttgcaaat gggcctagga 803

```
tgcattccat tttaacaatt cgtatgtatc taacaaatac ataaatccag atcacaaata
                                                                       180
atcttaaqaq ttaaacaatt aagaaacaca aagaatacca cataqatcta cctttaaata
                                                                       240
tcagcattca tattataaga aataagaaaa tgttaaaaaaa ataaaattag gttaagtcac
                                                                       300
aacataaaat agagaaataa gataaatgot attttattaa tattcataot tatttctaat
                                                                       360
ttaccttcat atagtcttaa ctttttcaaa aggatccaag atatgatcaa ataatatttt
                                                                      420
agtatetgaa ettgecagee ttagettata eeagagettg ttaccatgaa aateetaaaa
                                                                       480
cotcaatttt ottttcttt tttaaaattt aagocaactc ttattcaact tttcttcttc
                                                                       540
acaqcaqctg tttatagata gtagggagcc aagaatgaag gacagtaaca gatggaaagc
                                                                       600
aaaaaqtaca acagctatct taagttcagc tctcaacatt gctggttgag tttqgaaccc
                                                                      660
aaaaccctct taacaactgg cagataatag cttaaatctt tacaggccaa ggaagaaata
                                                                      720
ttttctttgg ggacagctgn tatctagaag aaaacccang ggccctttaa tataggccta
                                                                      780
aaatattaan gggnggcttt aattttagg
                                                                       809
      <210> 369
      <211> 826
      <212> DNA
      <213> Homo Sapiens
      <400> 369
gtgaagaccc tgagtccgtt tatttgccgg taggagcagg ctccaacatt ttgtctccat
                                                                       60
caaacgttga ctgggaagta gaaacagata attctgattt accagcaggt ggagacatag
                                                                       120
gaccaccaaa tggtgccagc aaggaaatac cagaattgga agaagaaaaa acaattccta
                                                                      180
ccaaagagcc tgagcagata aaatcagaat acaaggaaga aagatgcaca gagaagaatg
                                                                       240
aagategtea tgeactacae atggattaca taettgtaaa eeqtgaaqaa aatteacaet
                                                                      300
caaagccaga gacctgtgaa gaaagagaaa gcatagctga attagaattg tatgtaggtt
                                                                      360
ccaaagaaac agggctgcag ggaactcagt taqcaaqctt cccaqacaca tgtcagccag
                                                                      420
cctccttaaa tgaaagaaaa ggtctctctg cagagaaaat gtcttctaaa ggcgatacga
                                                                      480
qatcatcttt tgaaagccct gcacaagacc agagttggat gttcttgggc catagtgagg
                                                                      540
ttggtgatcc atcactggat gccagggact cagggcctgg gtggtctggc aagactgtgg
                                                                      600
ageogttete tgaactegge ttgggtgagg gtecceaget geagattetg gaagaaatga
                                                                      660
acetetagaa tetttageac tagangaage etntggteea gteageecat cacaqqaaga
                                                                      720
gttagaaccc gaggcanggc tgggcccgga tgcagtaccc cntgacagtg gaatgggnaa
                                                                      780
tgettttanc cacagcetgt teagaaaaac atgateettq eeeeqq
                                                                      826
     <210> 370
      <211> 783
      <212> DNA
      <213> Homo Sapiens
      <400> 370
gcagaatcaa tttttatttc tgaattatac aqtqaqqcta tataqatata ttgtgtcatt
                                                                       60
aaagactttt atattattaa totacattat ggagaattta tttaccaaaa cqaagtctaa
                                                                       120
cagacacttt attctgagca atccaatgca tgatagaaaa acctttagat atataaaaga
                                                                       180
ttaatttgtg cacatctaaa tgtttctaag ggaacaaact actgaggcat tgtgataaga
                                                                       240
cgagagttgc aaacatagta ccataactga atatttaaaa ttacatctta acaaaggcta
                                                                       300
ggagtagtga cttcctcaca cacctcagag aatgtcttag agagtaaccc catagaacat
                                                                       360
tgtatggctt caacagaaac ttcaggattt tcttccacac tgagctactg ccctcaaaca
                                                                       420
aactttetea eteettgaca etatettetg tgeaaattte tgttetttet ettaateaag
                                                                       480
gagetttgag aaacaatget tttgeeccaa tgacceettg gtteeettaa etacagatet
                                                                       540
ataggagaaa tgcaaagcag ttcccagaag tcagaaccaa agcaagaatg ttcagagtgc
                                                                       600
aagagctaga gagctaaatc atgtgaatgg ttacctctgn ctacctatct gcttanggat
                                                                       660
tatttttcta nggattcatc taggattcta tttaccttgg gggtgaaatg gacatggtag
                                                                       720
```

cttttcctta gccccatgcc aattaaaatt naatttgggc ntttaaagaa taattaaaat

<210> 371 <211> 793 <212> DNA <213> Homo Sapiens <400> 371 ccacactgca ggatctgtct tcttctaaag aaccttctaa ttccctaaac ttacctcaca 60 gtaatgaget gtgttcatcc ettgtgcatc ecgaattgag tgaggtcagt tetaacgttg 120 caccaagcat coctocagta atgtcaagac ctgttagete ttcctccatt tecactecet 180 tgcccccaaa tcaaataact gtatttgtca cttccaatcc catcacaact tcagctaaca 240 catcagcage tttgccaact cacttgcagt ctgcattgat gtcaacagtt gtcacaatgc 300 ccaatgoggg tagcaaggtt atggtttctg agggacagtc agctgctcag tctaatgccc 360 ggcctcagtt cattacacct gtctttatca attcatcctc aataattcag gttatgaaag 420 gatcacagec aagcacaatt cetgeagece cactgacaac caactetgge etgatgeete 480 cctctgttgc agttgttggc cctttacaca tacctcagaa cataaaattt tcttctqctc 540 ctgtaccgcc taatgccctc tccagtagtc ctgctccaaa catccagaca ggtcgacctt 600 tggtccttag ctcacgagcc acccctgttc agettccttc ccttcttgna cgtcttctnc 660 agttgccett ctnatcccct gtgcaacaag tgaaagaatt gaatncagat gangetagee 720 ctnangtgaa caccttaaca gatcagacac tttttccttt tncagtcaac cccaatgggt 780 tcttcccttt tga 793 <210> 372 <211> 804 <212> DNA <213> Homo Sapiens <400> 372 cacattgtac aaatccttag attctcttta ttcactggtc catttctaca acaaatacat 60 ccaaaacact atataataaa attatttaca acatttccaa atgagaagat tgcttttgcc 120 cccactactg ctattcacac acagtacttc cacggcacaa tacattagga gatctaaaaa 180 tgetcaccct gtactctagg etgettagga aatgtgaaaa etagtaacat ttataatqqe 240 attageteet tteaatacaa gacaacattt tagaaacett gaactteaac tegeaacace 300 aaaagggctc aacagtcctg ctttccccat tgcactttat gaaacaggtt gcagggacta 360 ggaaaagggc cacattatta aaattactaa ctgtacagaa attgatttaa aaaagtcaca 420 getcaaaatt getettigta aaagteacae acattteeaa gtateaagte geagteetge 480 ttgtttactt ggattttctt cgcttggatt qcaccqcact qqttatqtct ttagtagage 540 tggaggetga agcaggtcga gaagategtt tacgatgtcc attttccaca ctttcagagg 600 ccacagttgg ctcttcagtt cgggagtttc ttcggcctgg gatttggact tttcaactat 660 ctctttgggc tcactgcttt gtccagagac tatggcagca tttacctccg ctttgggctg 720 gcaacagang cctgcaatgc tgngggttga agttcctttt gagactaaat tctggcgacn 780 gggctttqct qqqqqtaaaq ttct 804

<210> 373 <211> 792

<211> /92 <212> DNA

<213> Homo Sapiens

<400> 373

geoggeogee egegeogee egeoggee eccagetega ggaggacate geggeoaagg 60
agaagttget gegggtgtee gaggacgag gggaceggg getggaggae geggacaagg 120
eggaggacaag ecteetggee geogaagag eegeegeea ggetgaagee gaegtagett 180
etetgaacag aegeatecag etggttgagg aagagtegga tegtgaagee gaegtagett 240
caacagettt geogaageeg geggaageeg agaagtegga agaagageag gaagaggea 300
tgaaagteat tgagagtega geceaaaag atgaagaaaa aatggaaaat eagagagtee 340
aactgaaaga ggcaaagea attgetgaag atgeogaceg caaatatgaa gaggtggeee 420

gtaagctggt	catcattgag	agcgacctgg	aacgtgcaga	ggagcgggct	gageteteag	480
aaggccaagt	ccgacagetg	gaagaacaat	taagaataat	ggatcagacc	ttgaaagcat	540
taatggctgc	agaggataag	tactcgcaga	aggaagacag	atatgaggaa	gagatcaagg	600
		gaggctgaga				660
		catttgatga				720
		tcaanatgct	ggatcagact	ttactggagt	taaaccacat	780
gtgaaaaact	tc					792
	> 374					
	> 745					
	> DNA					
<213	> Homo Sapi	ens				
-400	> 374					
		tgaacgtgga	ttaasataas	atgagagtag	atatatata	60
		caatgaataa				120
		ttgatcctgc				180
		tgggaatagt				240
		gtaaaagctg				300
		gaccaccagg				360
		tcattgtgga				420
		acttctgcca				480
		gttaccgcat				540
		atttcgcaca				600
		gagaggagcg				660
		cagtggtcac				720
	aaggaggatt		caccagacc	acguarguag	caccagoogec	745
gaaaaaacaa	aaggaggacc	ccaaa				743
<210	> 375					
	> 734					
<212	> DNA					
<213	> Homo Sapi	ens				
<400	> 375					
gaggtataaa	aaggaatatt	tatcttttaa	aaatacaact	ttgaacacta	ctggcatctc	60
atttacaaag	tatttttgtg	aaatactctc	cattggcttt	gcttgctcag	tacattcttt	120
tatcttcaat	tgagactcaa	gggagggtat	gcttgcatta	ttataaatac	cacaaccacc	180
accacacaca	ataaagacca	tetetgeete	aggacattcg	ccccaaacct	ccatcctctc	240
tgtttacttt	ccaccaagca	gaagtttctg	aatggtccac	tcacatgctg	ccattgcgat	300
		ggtgtctctg				360
		ccctagetea				420
		aacattcagc				480
		ctgacaacag				540
		atataaatcc				600
		cacatgagca				660
ccctccttta	aaagcagact	atttacaagt	gattctgaat	agcatgaaca	catgccagnc	720
atactggaaa	cttg					734
	> 376					
	> 822					
	> DNA					
<213	> Homo Sapi	ens				

<400> 376

ggctgatcag tgttctagaa cagatcagac attttgtaat gatgcctgaa ataaacacta

```
accacctcga caagcaacag gttcaactcc tggcagagat gtgtatcctt attgatgaaa
                                                                      120
atgacaataa aattggagct gagaccaaga agaattgtca cctgaacgag aacattgaga
                                                                      180
aaggattatt gcatcgagct tttagtgtct tcttattcaa caccgaaaat aagcttctgc
                                                                      240
tacaqcaaag atcagatgct aagattacct ttccaggttg ttttacgaat acgtgttgta
                                                                      300
gtcatccatt aagcaatcca gccgagcttg aggaaagtga cgcccttgga gtgaggcgag
                                                                      360
cagcacagag acggctgaaa gctgagctag gaattccctt ggaagaggtt cctccagaag
                                                                      420
aaattaatta tttaacacga attcactaca aagetcagte tgatggtate tggggtgaac
                                                                      480
atgaaattga ttacattttg ttggtgagga agaatgtaac tttgaatcca gatcccaatg
                                                                      540
agattaaaag ctattgttat gtgtcaaagg aagaactaaa agaacttctg aaaaaaqcag
                                                                      600
cccagtggtg aaattaagat aacgccatgg tttaaaatta ttgcagcgac ttttctcttt
                                                                      660
aaatggtggg ataacttaaa tcatttgaat caaqtttqqt qacccatqaq aaaatatacn
                                                                      720
gaatggggaa tatgtaggta aatggattac ccgaaaaaan ttatctgntt aacaaactta
                                                                      780
gaaaggettt ttneetttta aattaagtte tateattaaa tt
                                                                      822
      <210> 377
      <211> 812
      <212> DNA
      <213> Homo Sapiens
      <400> 377
gcaagaaata aatttttatt tttcttcatt atcatacagc atttaagaat aataaatctg
tettgaggtt teaaatetga gatatetatg geaagtttat aaaaagtaca ttgateaagg
                                                                      120
tacaattttt aacattaata tacacattcc ataatctcat ctatttaaca ttaacacagg
                                                                      180
cettigtigt igitatitit tictecetae aatatiteet gaeteigtag gaeagiggte
                                                                      240
ctcagttggg ggttgactct gtcccctagg ggcatctggc aacatccggc ataactgtgg
                                                                      300
gtgtcacatg agagggacgc tgctcaccat cctgcaatgc acagcacaga ccccaccaca
                                                                      360
ggggttttat ccagcccaaa tgtcaacagt gtcaagttta agcaactctt accgagtggg
                                                                      420
actcaattcc cattttatga acacctctgt gctcactgta attctgaaaa cacagacttt
                                                                      480
gctaactggt aaatactatt tacaagaaga ttcaacctaa tcaatatcac ttatcaaaag
                                                                      540
cagtggctga ctgtaagtat caacatgttt ccagaatgaa taaaccacac aatcaactca
                                                                      600
gaatgataca aattagggtc catatcattt aatttccctt gaacctgctc tgctaggtta
                                                                      660
atctgctaat atgaaagtta attaagactg gttttgaagg accgaggaca atagtttcct
                                                                      720
ttgcacaatt ttctgaacta tgagaaaaat ttaaaggatc cntaaagcnc ctggcaaaaa
                                                                      780
gccaaggccc tttgcaaagg gcttccggaa aa
                                                                      812
      <210> 378
      <211> 870
      <212> DNA
      <213> Homo Sapiens
      <400> 378
aaaatttaag ccaactctta ttcaactttt cttcttcaca gcagctgttt atagatagta
                                                                       60
gggagccaag aatgaaggac agtaacagat ggaaagcaaa aagtacaaca gctatcttaa
                                                                      120
gttcagctct caacattgct ggttgagttt ggaaccaaaa cctcttaaca actggcagat
                                                                      180
aatagctaaa tettaacaga caaagaagaa atattttett tgggacaget getatetaga
                                                                      240
agaaaaccaa ggtcccttaa tatagtctaa atataatgtg tggcttatta taqagaaatc
                                                                      300
tttagcaacg taagtttaac cagtaagtgt cacaactgat caacagtact taaaaggaaa
                                                                      360
caaacaaaaa tcacactagc cacaaatttc caccatatac acatgaaatt aattttaatc
                                                                      420
tgttttgact ccttgacact aactgatcat taatgaaata tgatatggaa agatcacaga
                                                                      480
gtagaaaaca agcaaagatt agtttataca acagtgacta tatacatcag agggaaaaca
                                                                      540
tgctagctaa tgcaacatta aggcctgaat gtaagcattt cccaagtcac agaagcccca
                                                                      600
aagaactcct aaattacaaa ttcatcacat tacatgcatg caatggtcac ttttggttta
                                                                      660
cccataaaag gatacncagt attttgctgn aaataccagg accacattta caatatatgc
                                                                      720
aaaaaattag aatgcagngg taagnteett anatttaage eetcatatgn gneaacaggg
                                                                      780
gaaaattcca tttattttta agaaaggaaa aanggagacn gggatataaa tactcqqaqa
```

aattccccga attaagaagn	aacctctgca				870
<210> 379					
<211> 837					
<212> DNA					
<213> Homo Sapie	en s				
VZIJV NOMO BAPI					
<400> 379					
gaggagaggt caaccgtcgt	agcgccaata	acttctactc	catgatccag	teggecaaca	60
gccatgtccg ccgcctggtg					120
aggagaagtt caagcaggcc	ctttctggaa	ttctcattca	atttgagcag	atagtggctg	180
tgtaccattc cgcctccaag	cagaaggcat	gggaccactt	cacaaaagcc	cagcggaaga	240
acatcagcgt gtggtgcaaa	caagctgagg	aaattcgcaa	cattcataat	gatgaattaa	300
tgggaatcag gcgagaagaa					360
aaacaaaaga aactgaggaa	tcagccttag	tatcacaggc	agaagctctg	aaggaagaaa	420
atgacageet eegttggcag					480
aacaaggcaa agtccacaga					540
aacaagccct gcaaggaatg					600
aagaagctga acttgaaaaa					660
atcttaaaga aaaggaaagc	tgtgcttcta	ngctgtgtgc	ctcaaaccag	gatagcgaat	720
accetnttga gaaagaccat					780
gttagtgggg gattatette	cacanttcct	tcatggtcac	cccatttgga	gccagcc	837
<210> 380					
<211> 793					
<212> DNA					
<213> Homo Sapi	ens				
100- 200					
<400> 380					
gttgcttagt ttcaggagtt	ctctacatat	tctggatatt	aattcctttt	catatatatg	60
gttgcttagt ttcaggagtt atttgcaaat attttctccc	attctgtggg	gtttttttac	tttgttgata	ttgtcttttg	120
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt	attctgtggg ttcatgaagt	gtttttttac ccaatttgtc	tttgttgata tattttttt	ttgtcttttg cttttgttgc	120 180
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa	attctgtggg ttcatgaagt gaaaccatta	gttttttac ccaatttgtc ccaaatccag	tttgttgata tattttttt tgttttgaag	ttgtcttttg cttttgttgc ctttccccat	120 180 240
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct	attotgtggg ttoatgaagt gaaaccatta tatggtttta	gttttttac ccaatttgtc ccaaatccag ggccttacat	tttgttgata tattttttt tgttttgaag ttaggccttt	ttgtctttg ctttgttgc ctttccccat gatccatttt	120 180 240 300
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt tttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct gagttaattt ttgtatatgg	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact	tttgttgata tattttttt tgttttgaag ttaggccttt tccttgtttg	ttgtctttg cttttgttgc ctttccccat gatccatttt gcatgtggat	120 180 240 300 360
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct gagttaattt ttgtatatgg atccaatttt cctaccacca	attetgtggg tteatgaagt gaaaceatta tatggtttta tgttaggtaa tttgtttgaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc	tttgttgata tattttttt tgttttgaag ttaggccttt tccttgtttg tttccccatt	ttgtctttg cttttgttgc ctttccccat gatccatttt gcatgtggat gaatggtctt	120 180 240 300 360 420
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct gagttaattt ttgtatatgg atccaattt cctacacca ggtagccttg tcaaaagtca	attetgtggg tteatgaagt gaaaceatta tatggtttta tgttaggtaa tttgtttgaa actgateata	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt	tttgttgata tattttttt tgttttgaag ttaggeettt teettgtttg ttteeceatt attteeggee	ttgtctttg cttttgttgc ctttccccat gatccatttt gcatgtggat gaatggtctt tccctaatct	120 180 240 300 360 420 480
gttgcttagt ttoaggagtt atttgcaaat attttetcec agacacaatt ttttttaatt ctatttigtg tcatcctcaa atgttttatt ctaagagcct gagttaattt ttgtatatgg atccaattt ctgtatatgg atccaactt caaaagtca attctatcag actatatgtc	attotgtggg ttcatgaagt gaaaccatta tatggttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccac	tttgttgata tattttttt tgttttgaag ttaggcettt teettgtttg ttteeceatt attteeggee attgttttga	ttgtctttg cttttgttgc ctttccccat gatccatttt gcatgtggat gaatggtctt tccctaatct ttactgttag	120 180 240 300 360 420 480 540
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaaagagcct gagttaattt ttgtatatgg atccaattt cctaccacca ggtagccttg tcaaaagtca attctatcag actatatgcc tccatcttta ttatataaaa	attotgtggg ttoatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac	gttttttac ccaattgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catctattt ccagtaccac aagctcatac	tttgttgata tatttttt tgttttgaag ttaggccttt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta	ttgtcttttg cttttgttgc ctttccccat gatccatttt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac	120 180 240 300 360 420 480 540
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctatttgtg tcatcctcaa atgtttaatt ctaattt ttgtattatg atcaattt ttgtattatg atcaattt ttgtattatg atcaacattt tcatcacacca attcatcag actatatgtc tcaaaagtca attttccaaat ttttccataag cttcatcaagtc	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtotttatg tcatgattac attgngttot	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccac aagctcatac tcttccacta	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tattttatac cgtttagagg	120 180 240 300 360 420 480 540 600
gttgcttagt ttoaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctatttigtg tcatcccaa atgtttatt ctaagagcct gagttaattt ttgtattagg atccaattt ctgtatatgg atccaactt caaaagtca attctatcag actatatgt tccatctta ttatataaaa ttttccaaat cttccatagc tataataagt agcctgaagt	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttcaggagtt atttgcaata tttttctact cagacacaatt ttttttatt ctatttgtg tcatcctcaa atgttttatt ctaatt ctatttgtg tcatcctcaa atgtttatt ctaaggagct gagtaattt ttgtatatgg atcaatttt tcatcaagtca attcatcag actatatgtc tcatcctta ttatataaaa ttttccaaac cttccatcggagtaataagt agcctgaagt taaaaagt agcctgaagt taataaga gtctataatg	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttoaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctatttigtg tcatcccaa atgtttatt ctaagagcct gagttaattt ttgtattagg atccaattt ctgtatatgg atccaactt caaaagtca attctatcag actatatgt tccatctta ttatataaaa ttttccaaat cttccatagc tataataagt agcctgaagt	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttcaggagtt atttgcaaat attttetecc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgtttaatt ctaatatgg atccaattt tctgtatatg atccaattt tctacacacca agttagcttg tcaaaagtca attctatcag actatatgtc tccatcttta ttatataaa ttttccaaat cttccatagc tataataagt agcctgaagt cagctataga gttcataatg ctttcacca ggc <210> 381	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttaaggagtt atttgcaaat attttetcec agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgtttatt ctaagagcct gagttaattt tcgtattatg atccaatttt cctacacca ggtagccttg tcaaaagtca attctatcag actatatgt tccatcttta ttatacaaaa ttttccaatagt tcataatagt tcataatagt agcctgaagt cagctataga gttcataatg ctttcacca ggc <210> 381 <211> 807	attotgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa tttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttcaggagtt atttgcaaat attttetccc agaccaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct gagtaattt tttgtatatg atccatcttt ctaagagcct ggtagcttg tcaaaagtca attctatcag actatatgtc tcatctta ttatataaaa tttccaaat cttccatagc tatataagt agcctgaagt cagctataga gttcataatg cttttcacca ggc <210> 381 <211> 387 <212> DNA	attctgtggg ttcatgaagt gaaaccatta tatggtttta tttggtttta tttgtttgaa actgatcata tgtctttatg tcatgattac attggttttatg tcatgattac attgngttta ggccagttaa gcccgaaagg	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttaaggagtt atttgcaaat attttetcec agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgtttatt ctaagagcct gagttaattt tcgtattatg atccaatttt cctacacca ggtagccttg tcaaaagtca attctatcag actatatgt tccatcttta ttatacaaaa ttttccaatagt tcataatagt tcataatagt agcctgaagt cagctataga gttcataatg ctttcacca ggc <210> 381 <211> 807	attctgtggg ttcatgaagt gaaaccatta tatggtttta tgttagtaa ttgtttgaa actgatcata tgtctttatg tcatgattac attgngttca ggccaagtca ggccaagtca ggccagaaagg	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttcaggagtt atttgcaata tttttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgttttatt ctaagagcct gagtaaattt ttgtatatgg atccaatttt coacaccca ggtagccttg tcaaaagtca attctatcag actatatgtc tcatcttat ttatataaaa ttttccaaat cttccatagc tataatagt agcctgaagt catatatga gtcataatgt ctttcacca ggc <210> 381 <211> 807 <212> DNA <213> Homo Sapi	attctgtggg ttcatgaagt gaaaccatta tatggtttta tgttagtaa ttgtttgaa actgatcata tgtctttatg tcatgattac attgngttca ggccaagtca ggccaagtca ggccagaaagg	gttttttac ccaatttgtc ccaaatccag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccae aagctcatac tcttccacta tgaaccaaac	tttgttgata tattttttt tgttttgaag ttaggcettt tccttgtttg tttccccatt atttccggcc attgttttga tataatatta aaaagcagac ttgagaatta	ttgtctttg cttttgttgc ctttccccat gatccattt gcatgtggat gaatggtctt tccctaatct ttactgttag tatttatac cgtttagagg cataaccttn	120 180 240 300 360 420 480 540 600 660 720
gttgcttagt ttcaggagtt atttgcaaat attttetccc agaccaatt ttttttaatt ctattttgtg tcatcccaa atgtttaatt ctaatatgg atccaattt ctcatcatag gttagcttg tcaaaagtca attctatcag actatatgtc tccatcttta ttatataaaa tttccaaat ctccatagc tatataatagt agcctgaagt cagctataga gttcataatag cttttcacca ggc <210> 381 <211> 807 <212> DNA <213> Homo Sapi <400> 381	attctgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggtaa ttgtttgaa actgatcata tgtctttatg tcatgattac attgngttct gggcaagtaa gcccgaaagg	gttttttac ccaaattgtc ccaaatcag ggcttacat ggacccaact aagattgtc catcttattt ccagtaccac aagctcatac tcttccacta tgaaacaaac gtaaagactg	tttgttgata tattttttt tgttttgaag ttaggcett tccttgtttg ttccccatt ttttgttttg tttccccatt tatttccggc attgtttg tataatatta aaaagcagc ttgagaatta caggncgctt	ttgtctttg cttttgttgc ctttceccat gatccatttt gcatgtggat gaatggtctt tccctaatct ttactgttag tattttatac cgtttagagg cataaccttn aattnccagg	120 180 240 300 360 480 540 600 720 780 793
gttgcttagt ttcaggagtt atttgcaaat attttctccc agacacaatt ttttttaatt ctattttgtg tcatcctcaa atgtttaatt ctaataggcct gagttaattt ttcgtatatgg atccaatttt cctaccacca ggtagccttg tcaaaagtca attctatcag actatatgc tccatctta ttatacaaaa ttttccaaat cttccatagc tataataagt agcctgaagt cagctataga gttcataatg ctttcacca ggc <210> 381 <211> 807 <212> DNA <213> Homo Sapi <400> 381 agaacaccct cttagagtc	attctytggg ttcatgaagt gaaaccatta tatggtttta tatggtttta tgttagtaa tttgtttg	gttttttac ccaaattgtc ccaaatccag ggccttacat agaattgtc castctattt ccagtaccac aagctcatac tcttcacta tgaaacaac gtaaaaaac gtaaaaactg taaagactg tgcccaagta	tttgttgata tattttttt tgttttgaag ttaggcett tccttgtttg ttccccatt attcccgcc attgtttg tataatatta aaaagcagac ttgagaatta caggnogott	ttgtctttg cttttgttg cttttcgcatt gatccattt gcatgtggat gaatggctt tccctaatct ttactgttag tattttatac cgtttagag cataaccttn aattnccagg	120 180 240 300 360 420 480 540 600 660 720 780 793
gttgcttagt ttcaggagtt atttgcaaat attttetccc agaccaatt ttttttaatt ctattttgtg tcatcccaa atgtttaatt ctaatatgg atccaattt ctcatcatag gttagcttg tcaaaagtca attctatcag actatatgtc tccatcttta ttatataaaa tttccaaat ctccatagc tatataatagt agcctgaagt cagctataga gttcataatag cttttcacca ggc <210> 381 <211> 807 <212> DNA <213> Homo Sapi <400> 381	attctgtggg ttcatgaagt gaaaccatta tatggtttta tgttaggttat tgttaggtaa tttgtttg	gtttttttac ccaaattgtc ccaaatcag ggccttacat ggacccaact aagattgtcc catcttattt ccagtaccac aagctcatac tcttccacta tgaaacaaac gtaaagactg taagccac tgaaccac tgaaccac tgaaccac tgaaccac tgaaccac tgaaccac tgaaccac tgaaccac tgaaccac	Ettgttgata tattEtttt tgttttgag ttaggcett tccttgtttg ttccccatt tttccccatt ttttgatttga	ttgtcetttg cttttgtgc ctttccceat gatccatttg catgtggat gaatggtett tccctaatct ttactgttag tattttatac cgtttagag cataaccttn aattnccagg tgggagaag tgggagaag gcagacgtga	120 180 240 300 360 480 540 600 720 780 793

300

tggaaaaaga tttagttctg agattaccca taaggatgtt gttcagcaga acaatactct

```
aatagaagaa atgctatacc tcattataat gcttgttgga gagagattta gtcctggagt
                                                                      360
tggacaggta aatgctacag atgaaatcaa gcgagagatt atccatcagt tgagtatcaa
                                                                      420
gcctatggct catagtgaat tggtaaagtc tttacctgaa gatgagaaca aggagactgg
                                                                      480
catggagagt gtaatcgaag cagttgccca tttcaaqaaa cctqqattaa caqqacqagq
                                                                      540
catgtatgaa ctgaaaccag aatgtgccaa agagttcaac ttgnatttct atcacttttc
                                                                      600
aagggcagaa cagtccaagg cagaagaagc gcaacggaaa ttgaaaagac naaatagaga
                                                                      660
agatacagca cttccacctt ccggggttgn ctncattetg gcctctggtt gcaagcetgg
                                                                      720
gtaacanttt gcagtcagat gtcatggtgn gcatcatggg gaaccaattn tgcaatgggc
                                                                      780
tgtggaacca taaanggata tgcctgg
                                                                      807
     <210> 382
      <211> 800
      <212> DNA
      <213 > Homo Sapiens
      <400> 382
aagtttaaat aaagaattta tttccaaatt caqcaqaact tctttctttc ttaaaaagcc
                                                                       60
aactgggtta aaaaaatcca agtttgtgtt ttttggtggt gcaataatta taaatgttgc
                                                                      120
cagtcaatgc caaccagtgt ctgattggct tcctgtgcat gtccaatttc ctctgtgaca
                                                                      180
ctgtgttggt gccagagctt ctgaatcttc ttgaatcgct ctttgcataa atgtaaagga
                                                                      240
ttteccegte tgagtecetg gteggtetee ceatagteat caaqqtaaqq aqqaqaataa
                                                                      300
aaacageett tggttttgee agetaaaaat ageacetgae atteeegtae teteaggaag
                                                                      360
atgeceacte cagagecaca ggagtaggtg tgagetgtge aggetectae atcetecect
                                                                      420
tecagtteag tetggeagea gtaactetgg gageaeagea gagateegea cacaaggeae
                                                                      480
agagttgggg ctctgctctt atcaccacct gatttcgggc acgagaaatt ggatgcttga
                                                                      540
ttaatgaggc tgctgtaatc ctctggaagg tttattaatt tgttaagatt ctcttggata
                                                                      600
tettatagea tetetttea eettetagaa atettttaae ttteaetggt aceggeacea
                                                                      660
acntttcaat cagggaattc antatctcac tattttcttt gaaaaaggca aatggaggtt
                                                                      720
ggtttgggta agggaaagga aaggcttccn taaaaggttc aaaaagggct tngttnccag
                                                                      780
gnaaccttgn aatgtegggt
                                                                      800
     <210> 383
     <211> 1203
      <212> DNA
      <213> Homo Sapiens
      <400> 383
ctgacatcta caccgaggte cgcgagetgg tgagcetcaa geaggageag caggetttea
                                                                       60
aggaggegge cegacaegga geggetegee etgeaggece teaeggagaa getteteagg
                                                                      120
tetgaggagt ccgteteccg ceteccggag gagatecgga gaetggagga agagetecge
                                                                      180
cagetgaagt cegatteeca egggeegaag gaggaeggag getteagaea eteggaagee
                                                                      240
tttgaggcac tccagcaaaa gagtcaggga ctggactcca ggctccagca cgtggaggat
                                                                      300
ggggtgctct ccatgcaggt ggcttctgcg cgccagaccg agagcctgga gtccctcctq
                                                                      360
tecaagagee aggageacga geagegeetg geegeeetge aggggegeet ggaaggeete
                                                                      420
gggtcctcag aggcagacca ggatggcctg gccagcacgg tgaggagcct gggcgagacc
                                                                      480
cagetggtgc tctacggtga cgtggaggag ctgaaqaqqa qtqtqqqcqa qctccccagc
                                                                      540
accegtggaa teactecaga aggtgcagga gcaqqtqcac acqetqctca qtcaqqacca
                                                                      600
ageccaggee geccgtetge etecteagga ettectggae agaetttett etetagaeaa
                                                                      660
cctgaaagcc tcagtcagcc aagtggaggc ggacttgaaa atgctcagga ctgctgtgga
                                                                      720
cagtttggtt gcatactcgg tcaaaataga aaccaacgag aacaatctgg aatcagccaa
                                                                      780
gggtttacta gatgacctga ggaatgatct ggataggttg tttgtgaaag tggagaagat
                                                                      840
tcacgaaaag gtctaaatga attgcgtgtg cagggcgcgg atttaaagtc caatttctca
                                                                      900
tgaccaaaaa atgtgtggtt ttttcccatg tgtcccctac cccccaattt cttgtcccct
                                                                      960
cttaaagagc agttgtcacc acctgaacac caaggcattg tattttcatg cccagttaac
                                                                      1020
```

ttatttacaa tatttaagtt ctctgcttct gcatttggtt ggtttcctga agcgcagccc

Ctgtgaataa Caggtggctt ttcatggatg tctctagtca gagaaaaatg ataaaggctt 1140 aaattgagga ttaacagaag cagattaacc tcagaaatcc tgtctggctg gcagatttca 1200 agt 1203

<210> 384

<211> 2651 <212> DNA

<213> Homo Sapiens

<400> 384

cctggctgca gagtacccca ccagcgcggt tcatagtggc gtcatgcacg cagactcctg 60 caagttcccc taagttctta gaggactget ttgccttttg atctgagagt tgcaaagttc 120 cataaagaat ggcccttgtg gataaqcaca aaqtcaaqaq acaqcqattq qacaqaattt 180 gtgaaggtat ccgccccag atcatgaacg gcccctgca cccccgccc ctggtggcgc 240 tgctggacgg ccgcgactgc actgtggaga tgcccatcct gaaggacctg gccactqtgq 300 ccttctgtga cgcgcagtcg acgcaggaaa tccacgagaa ggttctaaac gaaqccqtqq 360 qcqccatqat gtaccacacc atcaccetca ccagggagga cctggagaag ttcaaggccc 420 tgagagtgat cgtgcggata ggcagtggct atgacaacgt ggacatcaag gctgccggcg 480 ageteggaat tgeegtgtge aacateeegt etgeageegt ggaagagaea geggaeteta 540 ccatctgcca catcctcaac ctgtaccgga ggaacacgtg gctgtaccag gcactgcggg 600 aaggcacgcg ggttcagagc gtggagcaga tccgcgaggt ggcctcqqqa qcqqccqca 660 teegtgggga gacgetggge etcattgget ttqqteqeac qqqqeaqqeq qttqcaqtte 720 gagccaaggc ctttggattc agcgtcatat tttatgaccc ctacttgcag gatgggatcg 780 ageggteect gggegtgeag agggtetaea ceetgeagga tttgetgtat eagagegaet 840 gegteteett geactgeaat eteaacgaac ataaccacca ceteateaat gaetttacca 900 taaagcagat gaggcaggga gcattccttg tgaacgcagc ccgtggcggc ctgqtqqacq 960 agaaageett ageacaagee etcaaggagg geaggataeg aggggeagee etcgaegtge 1020 atgagtcaga gccctttagc tttgctcagg gtccgttgaa agatgcaccg aatcttatct 1080 gcactcctca cactgcctgg tacagcaagc aggcgtcact ggagatgagg gaggcagctg 1140 ccactgagat ccgccgagcc atcacaggtc acatcccaga aagcttaaga aactgtgtga 1200 acaaggaatt atctgtcaca tcagcgcctt ggtcagtaat agaccagcaa gcaattcatc 1260 ctgagetcaa tggtgccaca tacagatate egecaggeat egtgggegtg getecaggag 1320 gacttcctgc agccatggaa gggatcatcc cctgnaaggc atcccaqtga ctcacaaccc 1380 tecegacagt ggeacatect tteccaaggg cettnteeca accageceae aaaacaggg 1440 gecaategag agcaceccaa egageaatag cagagaatge cagaaggtaa teaeteagat 1500 acacttggga ccaagagnca gtgaaaaata gatgaactaa gagaaaaaga atcggatggt 1560 ctttqtaact tqattctqqa catatqcatc attqatqttq caqtqttqaa actacaagag 1620 ctagaaaact gaagatgtcg tctgcttacg gaagcgctga aagactagga tgtgatttat 1680 taacgaccaa cttctgttat tgtgtgttaa gtttttcatc tgtgcatcaa atcacaaaaa 1740 gaataaatag agetttttee titateagte cettgggcae ageaggteet gaacaccetg 1800 ctctacaatg ttgcatcaaq aqttcaaaca acaaaataaa aaatattaaq aqqaaatccc 1860 catcctgtga cttgagtccc ttaagtctac aggggctggt gacctctttt tgctaatagg 1920 aaaatcacat tactacaaaa tggggagaaa actgtttgcc tgtggtagac acctgcacgc 1980 ataggattga agacagtaca ggctgctgta cagagaagcg cctctcacat ctqaactgca 2040 2100 aaaaagtatt aagtttcaca agctgtttgt actcaaatat attttctcag tttcagatcc 2160 totgotattt tattgagtgg aaagtottga gotaaaaggg ttoaagaaga ataatottoo 2220 attteettat gteteaggaa acaettttta tggtaacttg teagattgte tatgaacaaa 2280 cccacttttt tagacattga taaagtette tteaegtgat attttataca agaacaette 2340 agatgtatta gatgtgactg attttaacaa atcctattag atttgtatca actagttaca 2400 tgttctattc atagtctttt gtgaatcatt gcctttttgt ttaaaaagat ggcctatttt 2460 gagectttgt ataggtacat teetgttttt gtgacaaaag aaaaacttta aaattgteec aaacagaaaa ataatggcta tcagaagtat qttttqtttt aqtqtqaqtt accqttactg 2580 tatttgttta ttgtaaaggt ggacatttag cgttcagtgc agttttcaat aaaaagtaat 2640 taaaatttgt t 2651

```
<210> 385
      <211> 804
      <212> DNA
     <213> Homo Sapiens
      <400> 385
cctggctgca gagtacccca ccagcgcggt tcatagtggc gtcatgcacg cagactcctg
                                                                       60
caagttcccc taagttctta gaggactgct ttgccttttg atctgagagt tgcaaagttc
                                                                       120
cataaagaat ggcccttgtg gataagcaca aagtcaagag acagcgattg gacagaattt
                                                                       180
gtgaaggtat cegeeccag atcatgaacg geeceetgea ceecegeece etqqtqqeqe
                                                                       240
tgctggacgg ccgcgactgc actgtggaga tqcccatcct qaaqqacctq qccactqtqq
                                                                      300
ccttctgtga cgcgcagtcg acgcaggaaa tccacgagaa ggttctaaac gaagccgtgg
                                                                      360
gegecatgat gtaccacacc atcacectca ccagggagga cctggagaag ttcaaggeec
                                                                      420
tgagagtgat cgtgcggata ggcagtggct atgacaacgt ggacatcaag gctgccggcg
                                                                       480
ageteggaat tgccgtgtge aacatecegt etgeageegt ggaagagaea geggaeteta
                                                                       540
ccatctgcca catcctcaac ctgtaccqqa qqaacacqtq qctqtaccaq qcactqcqqq
                                                                       600
aaggcacgcg ggttcagagc gtggagcaga tcccgcgagg tggcctcggg agcqgqccqc
                                                                       660
atnogtgggg agacgettgg geeteattgg etrtggteeg eaeeggggea ageeggttge
                                                                       720
agttcgagcc aaggcctttg gattcagcgc atattttatq accctacttt qcanqqatqq
                                                                       780
gatcgaaccg gtcccntggc cgtg
                                                                       804
      <210> 386
      <211> 782
      <212> DNA
      <213> Homo Sapiens
      <400> 386
gcatcatcag agggttttac tgaacttaca accgacttgc ccgctcagta tgcagttcag
                                                                       60
atgtgagagg cgcttctctg tacagcagcc tgtactgtct tcaatcctat gcgtgcaggt
                                                                       120
gtctaccaca ggcaaacagt tttctcccca ttttgtagta atgtgatttt cctattagca
                                                                       180
aaaagaggtc accagccct gtagacttaa gggactcaaq tcacaggatq qqqatttcct
                                                                       240
cttaatattt tttattttgt tgtttgaact cttgatgcaa cattgtagag cagggtgttc
                                                                       300
aggacctgct gtgcccaagg gactgataaa ggaaaaagct ctatttattc tttttgtgat
                                                                       360
ttgatgcaca gatgaaaaac ttaacacaca ataacagaag ttggtcgtta ataaatcaca
                                                                       420
tectagtett teagegette egtaageaga egacatette agttttetag etettgtagt
                                                                       480
ttcaacactg caacatcaat gatgcatatg tccagaatca gttacaaaga ccatccgatt
                                                                       540
ctttttctct tagttcatct atttttcact ggctcttggt cccaagtgta tctgagtgat
                                                                       600
taccttctgg cattctctgc tattgctcgg tggggtgctc tcgatggccc cgtggtttgn
                                                                       660
gggctggttg ggaanagggc ncttgggaaa ggaaqtqcca ctqtccqqaa qqntqqtgaa
                                                                       720
gtcactggga ngcctccagg gatgannccc tttccatggg ntgcaaggaa agncttcctg
                                                                       780
ga
                                                                       782
      <210> 387
      <211> 865
      <212> DNA
      <213> Homo Sapiens
      <400> 387
agattancnn enggageteg egegeetgea ggtegacaet agtggateea aagetgtate
                                                                        60
agagegactg egteteettg caetgeaate teaacgaaca taaccaccae eteatcaatg
                                                                       120
actttaccat aaagcagatg aggcagggag cattccttgt gaacgcaccc cqtqqtqqcc
                                                                       180
tggtggacga gaaagcctta gcacaagctc tcaaggaggg caggatacga ggggcagccc
                                                                       240
tctatgtgcg tgagtcggag ccctttagct ttgctcaggg tccgttgaaa gatgcaccga
                                                                       300
atettatetg cactecteae aetgeetggt acageaagea ggegteaetg gagatgaggg
                                                                       360
```

aggeagetge cactgagate egeogageea teacaggtea cateceagaa agettaaqaa

```
actgtgtgaa caaggaatta tctgtcacat cagcgccttg gtcagtaata gaccagcaag
                                                                       480
caattcatcc tgagctcaat ggtgccacat acagatatcc gccaggcatc gtgggcgtgg
                                                                      540
ctccaggagg acttcctgca gccttggaag ggatcatccc tggaggcatc ccagtgactc
                                                                      600
acaacetece aacagtggca catcettece aggegeette teccaaceag cecacaaaac
                                                                      660
acqqqqacaa tcgagagcac ttcaacgagc aatagcagag aatgcccgga aggtaatcat
                                                                      720
tcagatacat ttgggaccna qaqataqtqa aaaatqatqa acttaqaqaa aaaqqaatat
                                                                      780
gaaggnettt ggaactggat ettggaetta tgeateattg atgettgeaa gtggttaaaa
                                                                       840
ctnccaggag ctttgaaaac tggaa
                                                                      865
      <210> 388
      <211> 753
      <212> DNA
      <213> Homo Sapiens
      <400> 388
gagtataang gttaaattot atttaaaaag aaagnocatt aaatcaactt caagttotta
                                                                       60
nctcatagga ctatttngna ncacttcttt gnaaatatca tttngttagg tnatnggcaa
                                                                      120
ancagtttca nggttcactt ccctcccttg anccaggncc aggncatttn gctttggggn
                                                                      180
aaattaaaat canaattcta aaagttganc anctttgttt tttttnaatn gactnanctn
                                                                       240
tancccacca ttacaactta nqqacqqcat qactnqataa nqanqqactt qnqtqaqqtt
                                                                      300
ttgagttttc aattaanctt tgnatcacat gaggnaatng ncagcattct tgagncnggt
                                                                      360
tatggaatag gcagatanaa ccctgtagta ccaanagttg gaaatnggct aatngacaac
                                                                      420
gcactngcct taaacatctc angtagagaa cttttacatt agngagangt ncttgaattt
                                                                      480
cananctcac caaattttaa ttacttttta tngaaaactg cagngaangc taaaggtcta
                                                                      540
cgtttacaat aaacaaatcc agtancagta actcacactg aaccaaanca tacttctgat
                                                                      600
agccattatt tttcngcttg gggacaattt taaagntttt cttttggccc aaaaaccngg
                                                                      660
aatgtatece aaacnaagge teaaaagagg cecatenttt teaaacaaaa aagggcantg
                                                                      720
gattencaaa aanaetggng aaatagaaca tgg
                                                                      753
      <210> 389
      <211> 737
      <212> DNA
      <213> Homo Sapiens
      <400> 389
aggaaatcca cgagaaggtt ctaaacgaag ccgtgggcgc catgatgtac cacaccatca
                                                                        60
ccctcaccag ggaggacctg gagaagttca aggccctgag agtgatcgtg cggataggca
                                                                       120
gtggctatga caacgtggac atcaaggctg ccggcgagct cggaattgcc gtgtgcaaca
                                                                       180
tecegtetge ageegtggaa gagacagegg actetaceat etgecacate etcaacetgt
                                                                       240
accggaggaa cacgtggctg taccaggcac tgcgggaagg cacgcgggtt cagagcqtqq
                                                                       300
ageagateeg egaggtggee tegggagegg eeegcateeg tggggagaeg etgggeetea
                                                                       360
ttggctttgg tcgcacgggg caggcggttg cagttcgagc caaggccttt ggattcagcg
                                                                       420
tcatatttta tgacccctac ttgcaggatg ggatcgagcg gtccctgggc gtgcagaggg
                                                                       480
totacaccot gcaggatttg ctgtatcaga gcgactgcgt ctccttgcac tgcaatctca
                                                                       540
acgaacataa ccaccacctc atcaatgact ttaccataaa gcagatgagg cagggaqcat
                                                                       600
teettgtgaa egeageeegt ggeggeetgg tggaegagaa aqeettaqea caaqeeetna
                                                                       660
agganggcag gatacnaagg ggcaancett gacgtgcatq aqtcaaaanc etttagettt
                                                                       720
tgcttaaggg tecgttg
                                                                       737
      <210> 390
      <211> 775
      <212> DNA
      <213> Homo Sapiens
```

<400> 390

900

gcatcatcag	agggttttac	tgaacttaca	accgacttgc	ccgctcagta	tgcagttcag	60
atgtgagagg	cgcttctctg	tacagcagcc	tgtactgtct	tcaatcctat	gcgtgcaggt	120
gtctaccaca	ggcaaacagt	tttctcccca	ttttgtagta	atgtgatttt	cctattagca	180
aaaagaggtc						240
cttaatattt						300
aggacctgct						360
ttgatgcaca	gatgaaaaac	ttaacacaca	ataacagaag	ttggtcgtta	ataaatcaca	420
tcctagtctt						480
ttcaacactg						540
tctttttctc						600
ttaccttctg						660
gtgggctggt						720
tcactgggat						775
	3	334034000	00000009500	cggougguau	90000	,,,
<210>	391					
<211>						
<212>						
	Homo Sapie	an c				
12137	nomo bupit	-110				
<400>	391					
gtggataagc	acaaagtcaa	gagacagega	ttggacagaa	tttgtgaagg	tatecgecce	60
cagatcatga						120
tgcactgtgg	agatgcccat	cctgaaggac	ctggccactg	tggccttctg	tgacgcgcag	180
tcgacgcagg						240
accatcaccc						300
ataggcagtg						360
tgcaacatcc	catctacaac	catagaagag	acageggaet	ctaccatctg	ccacatcctc	420
aacctgtacc						480
agcgtggagc						540
ggcctcattg						600
ttcagcgtca						660
gcagaaggtc						720
tgcaatntta						776
					aagooa	,,,
<210>	392					
<211>	909					
<212>	- DNA					
<213>	Homo Sapi	ens				
<400>	202					
		+a++#22222	t			
					cacctttaca	60
tttttatatat	acagtaacgg	taacccacac	Laaaacaaaa	cataettetg	atagccatta	120
trectedget	tgggacaatt	ttaaagtttt	tettttgtca	caaaaacagg	aatgtaccta	180
tacaaaygct	caaaataggc	catcttttta	aacaaaaagg	caatgattca	caaaagacta	240
tgaatagaac	atgtaactag	ttgatacaaa	tctaatagga	tttgttaaaa	tcagtcacat	300
					atcaatgtct	360
					tttcctgaga	420
cataaggaaa	tgcaacatta	ttettettga	accettttag	ctcaagactt	tccactcaat	480
					ttgtgaaact	540
					aaccgacttg	600
cccgctcagt	atgcagttca	naagtganag	gcgcttctct	gtacagcaac	ctggactggc	660
					attttggtag	720
taatggggat	tttcctatta	gccaaaaaag	angtcaccag	nccctgnaga	cttaaaggga	780
cctcaaggtc	nccaggaatg	ggggatttcc	ctcntaaaaa	atttttaatt	ttggggggtt	840

gnaactettg gangccacca tttgtaaaac canggggtte aagaacetgg ntgggcccca

360

agggacctg	909
<210> 393	
<211> 769	
<212> DNA	
<213> Homo Sapiens	
<400> 393	
caaattttaa ttacttttta ttgaaaactg cactgaacgc taaatgtcca cctttacaat	60
aaacaaatac agtaacggta actcacacta aaacaaaaca	120
tttctgtttg ggacaatttt aaagtttttc ttttgtcaca aaaacaggaa tgtacctata	180
caaaggetea aaataggeea tetttttaaa caaaaaggea atgatteaca aaagaetatg	240
aatagaacat gtaactagtt gatacaaatc taataggatt tgttaaaatc agtcacatct	300
aatacatctg aagtgttctt gtataaaata tcacgtgaag aagactttat caatgtctaa	360
aaaagtgggt ttgttcatag acaatctgac aagttaccat aaaaagtgtt tcctgagaca	420
taaggaaatg caacattatt cttcttgaac ccttttaget caagactttc cactcaataa	480
aatagcagag gatctgaaac tgagaaaata tatttgagta caaacagctt gtgaaactta	540
atactttttt tttttttttg catcatcana gggttttact gaacttacaa ccgacttgcc	600
cgctcagtat gccagttcan atgtgaaagg cgcttttntg tcagcagcct gnactggctt	660
caatcctatg cgtgcaggng tttacccaca ggcaaacagg ttttctnccc catttttgga	720
agtaatgggg attttcctat tagcaaaaaa gaaggncacc aancccctg	769
<210> 394	
<211> 813	
<212> DNA	
<213> Homo Sapiens	
<400> 394	
ggaagatggc ggagctgcgc gtgctcgtag ctgtcaagag ggtcatcgac tacgccgtga	60
agateegagt gaageetgae aggaeeggtg tggteaegga tggtgtgaag cacteeatga	120
accccttctg tgagatcgcg gtggaggagg ctgtgcggct caaggagaag aagctggtga	180
aggaggteat egeogteage tgtgggeetg cacagtgeea ggagaegatt egtaeegeee	240
tggccatggg tgcagaccga ggtatccacg tggaggtgcc cccagcagaa gcagaacgct	300
tgggtcccct gcaggtggct cgggtcctgg ccaagctggc agagaaggag aaggtggacc	360
tggtgctgct gggcaaacag gccatcgatg atgactgtaa ccagacaggg cagatgacag	420
ctggatttct tgactggcca cagggcacat tcgcctccca ggtgacgctg gaggggaca	480
agttgaaagt ggagcgggag atcgatgggg gcctggagac cctgcgcctg aagctgccag	540
ctgtggtgac agctgacctg aggctcaacg agccccgcta cgccacgctg cccaacatca	600
tgaaagccaa gaagaagaag atcgaggtga tcaagcctgg ggacctgggt gtggacctga	660
cctccaagct ctctgtgatc agtgtggagg acccgcccca gcgcacggcc ggcgtcaagg	720
tggagaccac tgaggacctg gtggccaagc tgaaggagat tgggcggatt tgagccctc	780
ccagagatgg caataaaact gactctcaac atc	813
<210> 395	
<211> 762	
<212> DNA	
<213> Homo Sapiens	
<400> 395	
ggaagatggc ggagctgcgc gtgctcgtag ctgtcaagag ggtcatcgac tacgccgtga	60
agatccgagt gaagcctgac aggaccggtg tggtcacgga tggtgtgaag cactccatga	120
accepttetg tgagategeg gtggaggagg etgtgegget caaggagaag aagetggtga	180
aggaggtcat cgccgtcagc tgtgggcctg cacagtgcca ggagacgatt cgtaccgccc	240
tggccatggg tgcagaccga ggtatccacg tggaggtgcc cccagcagaa gcagaacgct	300

tgggtcccct gcaggtggct cgggtcctgg ccaagctggc agagaaggag aaggtggacc

```
tggtgctgct gggcaaacag gccatcgatg atgactgtaa ccagacaggg cagatgacag
                                                                      420
ctqqatttct tgactggcca cagggcacat tcgcctccca ggtgacgctg gagggggaca
                                                                      480
agttgaaagt ggagcgggag atcgatgggg gcctggagac cctgcgcctg aagctgccaq
                                                                      540
ctgtggtgac agctgacctg aggctnaacg agcccccgct acgccacgct tqccaacatc
                                                                      600
atgaaagcca agaagaagaa gatcgangtg atcaacctgg gganctgggt gtggacctga
                                                                      660
ctccagcttt tttgngatca gtgtgganga ccqqcccacq cacqqqcqcq tcaanqtqqa
                                                                      720
gaccetgagg acetggtggn caactnaaaq aaaatqqqcq qa
                                                                      762
      <210> 396
      <2115 R22
      <212> DNA
      <213> Homo Sapiens
      <400> 396
gagagtcagt tttattgcca tctntgggag gggctcaaat ccgcccaatc tccttcagct
                                                                       60
tggccaccag gtcctcagng gtctccacct tgacgccggc cgtgcgctgg ggcgggtcct
                                                                      120
ccacactgat cacagagage ttggaggtca ggtccacace caggtcccca ggettgatca
                                                                      180
cctcgatctt cttcttcttg gctttcatga tgttgggcag cgtggcgtag cggggctcqt
tgagecteag gteagetgte accaeagetg geagetteag gegeagggte tecaggecee
                                                                      300
categatete eegeteeact tteaacttgt eececteeag egteacetgg gaggegaatg
                                                                      360
tgccctgtgg ccagtcaaga aatccagctg tcatctgccc tgtctggtta cagtcatcat
                                                                      420
cgatggcctg tttgcccagc agcaccaggt ccaccttctc cttctctgcc agcttggcca
ggacccgagc cacctgcagg ggacccaagc gttctgcttc tgctgggggc acctccacgt
                                                                      540
ggataceteg gtetgeacce atggecaggg eggtaceaat egteteetgg caetgtgeag
                                                                      600
gcccacagnt gacggcgatg accttccttc accaagcttt tttctccttt gagccqqaca
                                                                      660
ggcctcttca acgggatctt caccanaaag gggttcatgg gagngcttaa aaccatccgn
                                                                      720
gaacccaccg gnccttgtna ggctttactt cggatctttn acnggggaat cgatgaccen
                                                                      780
ttttgacagg tacgaacccc cgccagnttc ggcattttcc tt
                                                                      822
     <210> 397
      <211> 812
      <212> DNA
      <213> Homo Sapiens
      <400> 397
gatgttgaga gtcagtttta ttgccatctc tgggaggggc tcaaatccgc ccaatctcct
                                                                       60
tcagcttggc caccaggtcc tcagtggtct ccaccttgac gccggccgtg cgctggqqqq
                                                                      120
ggtcctccac actgatcaca gagagettgg aggtcaggtc cacacccagg tecccagget
                                                                      180
tgatcacctc gatcttcttc ttcttggctt tcatgatgtt gggcagcgtg gcgtagcggg
                                                                      240
getegttgag ceteaggtea getgteacea eagetggeag etteaggege agggteteea
                                                                      300
ggcccccatc gatctcccgc tccactttca acttgtcccc ctccaqcqtc acctgggagg
                                                                      360
egaatgtgee etgtggeeag teaagaaate eagetgteat etgeeetgte tggttacagt
                                                                      420
catcatcgat ggcctgtttg cccagcagca ccaggtccac cttctccttc tctgccagct
tggccaggac ccgagccacc tgcaggggac ccaagcgttc tgcttctgct qqqqqcacct
                                                                      540
ccacgtggat acctcggtct gcacccatgg ccagggcggt acgaatcgtc tcctggcact
                                                                      600
gtgcaggccc acaagctgac gggcgatqaa cctccttcac caqcttcttc tccttgagcc
                                                                      660
cgcacagcct tcttcaccgc gatctcacag gaaggggttc atggagtgct tacaaccatc
                                                                      720
cggngaccac accgggccct gtcaggcttt aactcggant ctttacgggg taatcqnntq
                                                                      780
gacctttttg acaagctacc aagcaccccq ca
                                                                      812
      <210> 398
      <211> 751
      <212> DNA
      <213> Homo Sapiens
```

780

<400> 398 gatgttgaga gteagtttta ttgccatete tgggaggggc teaaateegc eeaateteet 60 ttngcttggc caccaggtcc tcagtggtct ccaccttgac gccggccgtg cgctggggcq 120 qqtcctccac actqatcaca qagaqcttqq aqqtcaqqtc cacacccaqq tccccaqqct 180 tgatcacctc gatcttcttc ttcttggctt tcatgatgtt gggcagcgtg gcgtagcggg 240 getegttgag ceteaggtea getgteacea eagetggeag etteaggege agggteteea 300 ggcccccatc gatetcccgc tecactitca actigtcccc ctccagcgtc acctgggagg 360 equatqtgcc ctgtggccag tcaagaaatc caqctgtcat ctgccctgtc tqgttacaqt 420 cateateqat qqcctqtttq cccaqcaqca ccaqqtccac cttctccttc tctqccaqct 480 tggccaggac ccgagccacc tgcaggggac ccaagcgtnc tgcttctgct gggggcacct 540 ccaegtggat accteggtet geacceatgg ccagggeggt acnnaategn etcetggeae 600 tgtqcaqqcc cacaagntga cgggqaatga cctccttnac caaqcttntt ntccttqacc 660 cgaaaagett etteacegng aacttneaga angggtteaa tggantgett tacacatteg 720 ggaccacccc cgggccttgt caggctttaa t 751 <210> 399 <211> 800 <212> DNA <213> Homo Sapiens <400> 399 agatqttqaq aqtcaqtttt attqccatct ctqqqaqqqq ctcaaatccq cccaatctcc 60 ttcagcttgg ccaccaggtc ctcagtggtc tccaccttga cgccggccgt gcgctggggc 120 gggtcctcca cactgatcac agagagcttg gaggtcaggt ccacacccag gtccccagge 180 ttgatcacct cgatcttctt cttcttggct ttcatgatgt tgggcagcgt ggcgtagcgg 240 ggetegttga geeteaggte agetgteace acagetggea getteaggeg cagggtetee 300 aggececcat egateteeeg etecaettte aacttqteee eetecaqeqt caectqqqaq 360 gcgaatgtgc cctgtggcca gtcaagaaat ccagctgtca tctgccctgt ctggttacag 420 teateatega tggeetgttt geeeageage aeeaggteea eetteteett etetgeeage 480 ttqqccaqqa cccqaqccac ctqcaqqqqa cccaaqcqtt ctqcttctqc tqqqqqcacc 540 ttecaegtgg ataceteggt etgacecatg geeagggegg taegaategt eteetggeae 600 tgngcangec cacaagetga eggegatgac etnettnace agettettet nettgageee 660 ggacaagnet tetteaaceg ggateteaca agaaggggte atggagtget tteacaceat 720 tegggancac aaceggneet gneaaggett naacttggae ntttacggng taatecgatg 780 aaccettttt gacagntacc 800 <210> 400 <211> 810 <212> DNA <213> Homo Sapiens <400> 400 ggaagactga attgaaagaa gatagctcta gcagtgaagc agaggaagaa gaggaggagg 60 aagatgatga aaaagaaaag gaggataata gcagtgaaga agaqgaagaa ataqaaccat 120 ttccagaaga aagggagaac tttcttcagc aattqtacaa atttatggaa qataqaqqta 180 cacctattaa caaacqacct qtacttqqat atcqaaattt qaatctcttt aaqttattca 240 gacttqtaca caaacttqqa qqatttqata atattqaaaq tqqaqctqtt tqqaaacaaq 300 tetaccaaga tettggaate cetgtettaa atteagetge aggatacaat gttaaatgtg 360 cttataaaaa atnctnatnt ggctntgngg agtactgtac atcagccaac attgaatttc 420 agatggcatt gccagagaaa gttgttaaca agcaatgtaa qqagtqtqaa aatgtaaaaq 480 aaataaaaqt taaqqaqqaa aatqaaacaq aqatcaaaqa aataaaqatq qaqqaqaqa 540 ggaatataat accaagagaa gaaaagccta ttgaggatga aattgaaaga aaagaaaata 600 ttaagccctc tctgggaagt aaaaagaatt tattagaatc tatacctaca cattctgatc 660

aggaaaaaga agttacatta aaaaaccnga agacaatgaa aatctqqqcc gaccaaqatq

atgacncaac tagggtagat gaatccctca acentaaggt agaactgagg aagaaaaagc

caaatctgga tncnatgaat gggattaagc	810
<210> 401	
<211> 860	
<212> DNA	
<213> Homo Sapiens	
•	
<400> 401	
gggaggcccg cctagccacc ctgaccagcc gtgtagaaga agacagcaac agagattata	60
aaaaactcta tgagagtgct ctgactgaaa accaaaaact gaaaacaaaa cttcaggaag	120
cccagctaga gctagcagat ataaagtcca agcttgagaa ggtggcccag cagaaacaag	180
aaaagacctc tgaccgatca tcagtgctgg agatggagaa acgggagagg cgagccttgg	240
agcgcaaaat gtcagaaatg gaggaagaaa tgaaggtgtt aacagaactg aaatccgaca	300
accagagget gaaagatgaa aatggtgeee teateagagt cateageaaa etgteeaagt	360
aggctaggct ccagatttat gaggaaagaa agggacagca tttgctgccc ccacccctct	420
tttccagtcc ttgccttcca accaaaagaa atggatgttt tggtggaagg acacttcttt	480
ctatcaccct cttcagtcac ctctatacac tctacatttt ctctgcactt tcaatgeect	540
gttettecaa acceetatee caagttttat gacagtttta attgaageat gattgtggta	600
attegageca tetggagaat getetgggga gtacaccagg eteagetgtg gacceeteaa	660
cttcctgctg ctcagctact ttgtccacat tggatttggt ccaaacatgt aagactttct	720
accetnatea gtateettea getttttaca ttaacceagt gneettetga tataggtgaa	780
gtccttgngg gtagccactt tcaggatcct ggaatggggt gcccaagaga aacngccagg atggttgaat tggatcattc	840 860
acggeogaac eggaceaece	860
<210> 402	
<211> 779	
<212> DNA	
<213> Homo Sapiens	
<400> 402	
gagatggagt cttgctctgt cacccaggct ggagtgcagt ggcgtgatca aggctcactg	60
caageteege eteeegggtt caegecatte teetgeetea geeteeegag tagetgggae	120
tacaggegee egecaceaeg cetggetaat titttgtatt titagtagag attgggtite	180
acceptettag ccaggategt ctcgaactcc teacctcete atctetccac ctcegectcc	240
tgaagtgctg ggattacagg catgagccac tgcacctggt ggaattggga tcttgaatta	300
cagcttctag tttaaacagc atgtggtgtt tcagagggag gaccatggag agctacatgt	360
catgttagga aagaattaac agacagaggt agtatatatt aagggaatga accactctaa	420
acactgaata tcactggcaa coctaaaatg atgaggattt aatgacttgc acactcaagt	480
gaaccaaggg ataaaactcc tacaaaaaga aaatactgta agtattaatg ctaggttatc	540
atcaaganct aatggtttaa ttttgcactg gatttgnatt cttttccagg cctggacatg	600
atattttaaa ggctggttnt ggctagagga ggatgggcca anatgtgaca gggangaaaa gcatgcctta tgaggaatga cttaaaggga ctagaggtaa cagcagctca aaagtaagaa	660
ctgaggggga aaacccccca ctgnaccata tntnaagggc cgttaaagaa ttgcagaat	720 779
cegaggggga dadececca eegmaceata enemaaggge egetaaagaa eegeagaat	//9
<210> 403	
<211> 1443	
<212> DNA	
<213> Homo Sapiens	
<400> 403	
cttcaggaac tgttaaaaga aaaacaacaa gaagtaaagc agctacagaa ggactgcatc	60
aggtatcaag agaaaattag tgctctggag agaactgtta aagctctaga atttgttcaa	120
actgaatete aaaaagattt ggaaataaee aaagaaaate tggeteaage agttgaacae egeaaaaagg cacaageaga attagetage tteaaagtee tgetagatga cacteaaagt	180 240

300

gaagcagcaa gggtcctagc agacaatctc aagttgaaaa aggaacttca gtcaaataaa

```
qaatcaqtta aaaqccaqat qaaacaaaaq qatqaaqatc ttqaqcqaaq actqqaacaq
                                                                    360
gcagaagaga agcacctgaa agagaagaag aatatgcaag agaaactgga tgctttgcgc
                                                                    420
agagaaaaag tocacttgga agagacaatt ggagagatto aggttacttt gaacaagaaa
                                                                    480
gacaaggaag ttcagcaact tcaggaaaac ttggacagta ctgtgaccca gcttgcagcc
                                                                    540
tttactaaga gcatgtcttc ccttcaggat gatcgtgaca gggtgataga tgaagctaag
                                                                    600
660
gaagataatt gcagtgttct aaaggatcaa cttagacaga tgtccatcca tatggaagaa
                                                                    720
ttaaagatta acatttccag gettgaacat gacaagcaga tttgggagte caaggeecag
                                                                    780
acaqaqqtcc agcttcagca gaaggtctgt gatactctac agggggaaaa caaaqaactt
                                                                    840
ttqtcccaqc taqaaqaqac acgccaccta taccacagtt ctcaqaatqa attaqctaaq
                                                                    900
ttqqaatcaq aacttaaqaq tctcaaaqac caqttqactq atttaaqtaa ctctttaqaa
                                                                    960
aaatgtaagg aacaaaaagg aaacttggaa gggatcataa ggcagcaaga ggctgatatt
                                                                   1020
caaaattcta aqttcaqtta tgaacaactg gagactgatc ttcaggcctc caqaqaactq
                                                                   1080
accaqtaqqc tqcatqaaqa aataaatatq aaaqaqcaaa aqattataaq cctqctttct
                                                                   1140
ggcaaggaag aggcaatcca agtagctatt gctgaactgc gtcagcaaca tgataaagaa
                                                                   1200
attaaagagc tggaaaacct gctgtnccag gaggaagagg agaatattgg tttagaagag
                                                                   1260
gagaacaana angettgtgg ttaaaaccca atcagettat gggaacaett gaaaaccate
                                                                   1320
aaaanggaaa catttagnca aaaggcncag ttggattcct tggtnaaatc ctgncttctn
                                                                   1380
ttccaaatgg atccgagaac cgcntagtgg ggggactatt caccagctgg gaanagccga
                                                                   1440
                                                                   1443
     <210> 404
     <211> 819
     <212> DNA
     <213> Homo Sapiens
      <400> 404
gcgattcaaa gcaaagaaga agaaattaga ctcaaagaag ataattgcag tgttctaaag
                                                                     60
qatcaactta gacagatgtc catccatatg gaagaattaa agattaacat ttccaqqctt
                                                                     120
qaacatqaca aqcaqatttq qgaqtccaag gcccaqacaq aqqtccaqct tcaqcaqaaq
                                                                     180
qtctqtqata ctctacaqqq qqaaaacaaa qaacttttqt cccaqctaqa aqaqacacqc
                                                                     240
cacctatacc acagttetca quatquatta qetaaqttqq aatcaqaact taaqaqtete
                                                                     300
aaagaccagt tgactgattt aagtaactct ttagaaaaat gtaaggaaca aaaaggaaac
                                                                     360
ttggaaggga tcataaggca gcaagaggct gatattcaaa attctaagtt cagttatgaa
                                                                     420
caactggaga ctgatcttca ggcctccaga gaactgacca gtaggctgca tgaaqaaata
                                                                     480
aatatgaaag agcaaaagat tataagcctg ctttctggca aggaagaggc aatccaaqta
                                                                     540
qctattqctq aactqcqtca qcaacatqat aaaqaaatta aaqaqctqqa aaacctqctq
                                                                     600
tnccaqqaqq aaqaqqaqaa tattqqttta qaaqaqqaqa acaanaanqc ttqtqqttaa
                                                                     660
aacccaatca qcttatqqqa acacttqaaa accatcaaaa nqqaaacatt tagncaaaaq
                                                                     720
gencagttgg attecttggt naaateetgn ettetnttee aaatggatee gagaacegen
                                                                     780
tagtggggg actattcacc agctgggaan agccgactt
                                                                     819
      <210> 405
      <211> 761
      <212> DNA
      <213> Homo Sapiens
```

<213> Homo Sapiens

<400> 405

ctgaaaataa ttttattatt ttacagttgt tcaggaaact tcccaggatg ttgtaaccaa 60
natttaatca ccacagtana tttanagcan atcagtcagc cacttgtct tcctcttct 120
ttaggganaag gctaggcagt gaacacatca tgtatgcaat ganaaaataa ccaactggta 180
ggatggggga gggaggggg ggcagggat aggcncaaat ggaattctat cctggctgtc 240
cttctcaggt ctatctatat ttaatttgt cttctctata ttctccttca attgccacag 300
agggcanaga caatggggct gaaaaactgt aataactgnc actaacagca aagtactat
gtncttcaag aggtcaggag ttgcagtgtg gtgttanacc agtcanactc ctqqctqaaa 420

rtcaatqcct	aatattggct	cccagnggcc	cctgagcact	gtctcagggt	ccacattcca	480
		gaatgacaag				540
		gaaagacttt				600
		aggggattct				660
		gaaattggcc				720
		ccccnttaag			ooooooaog.i	761
ggaacccacc	aggirecadaa	ccccnccaag	ggageeeeee	-		,01
<210>	406					
<211>						
<212>						
	· Homo Sapie	ens				
<400	406					
gatactgaac	ttcagattat	taggtttatt	gaaaccatcc	tettagetta	getgaaagae	60
		ggaccacaaa				120
		tgtgattete				180
		ccagtccctg				240
		gaagagttgg				300
		tgttagaggt				360
		ctatagatgg				420
		tgctagaagt				480
		aacgccactc				540
		ctgagtgcca				600
		accggctgga				660
		cncggtcttt				720
		aactgctggt		occcoccaa	accaccccc	758
0000330033	11550050000	4400300550	-554-000			, 50
<210	> 407					
	> 778					
	> DNA					
<213	> Homo Sapi	ens				
	-					
<400	> 407					
cttcaggaac	tgttaaaaga	aaaacaacaa	gaagtaaagc	agctacagaa	ggactgcatc	60
aggtatcaag	agaaaattag	tgctctggag	agaactgtta	aagctctaga	atttgttcaa	120
actgaatctc	aaaaagattt	ggaaataacc	aaagaaaatc	tggctcaagc	agttgaacac	180
cgcaaaaagg	cacaagcaga	attagctagc	ttcaaagtcc	tgctagatga	cactcaaagt	240
gaagcagcaa	gggtcctagc	agacaatctc	aagttgaaaa	aggaacttca	gtcaaataaa	300
gaatcagtta	aaagccagat	gaaacaaaag	gatgaagatc	ttgagcgaag	actggaacag	360
gcagaagaga	agcacctgaa	agagaagaag	aatatgcaag	agaaactgga	tgctttgcgc	420
agagaaaaag	tccacttgga	agagacaatt	ggagagattc	aggttacttt	gaacaagaaa	480
gacaaggaag	ttcagcaact	tcaggaaaac	ttggacagta	ctgtgaccca	gcttgcagcc	540
tttactaaga	gcatgtette	ccttcaggat	gatcgtgaca	gggtgataga	tgaagctaag	600
aaatgggaga	ggaagtttag	tgatgcgatt	caaagcaaag	aagaagaaat	tagactcaaa	660
gaagataatt	gcagtgtcta	aaggacactt	agacagatgt	ccttcntatg	gaagaattaa	720
agantaccat	ttcaggcttt	gaccatgaca	gcagatttgg	agtecaggne	caaccaga	778
		-			=	
	> 408					
	> 752					
	> DNA					
<213	> Homo Sapi	.ens				
-100	~ 400					

canattatta ggttnatnga anccatectn tnggntnggn tgaaanaent teetnagtnt nttttaengg aceneaaaan ateagggnee tgeaaaatet eancaaatnt taggeteane

60

120

```
aaaccaaang ngattntnaa attaancaaa ancgttcagg ctcagggcag taaaaaaaaag
                                                                      180
caaactegee agneentgea getecaacet gneetegtat encetnigti titigeaggen
                                                                      240
ntttccgnga anagttggan anaaaacctg taaanggnaa aactgttcca ntggaatnga
                                                                      300
ngttctgatg ttanaggnga nanaattcca agttttgagg ggagnggncc aaaqaqtacc
                                                                      360
aactaaqtnt ntananggcc cgtaaaacnc anantganca ggacntgaat enttaaaaag
                                                                      420
taaatggctq ntaaaagngq cnctcqqqtc cqtqaatqac aqaqtqancn caqqactcqn
                                                                      480
ttccatccaa cgccantccg ggtccttcga caactgtngc ttgtaanatc tattaacagg
                                                                      540
gcctgntcct gantgccaca ggagccaatg ntaggagtcc gggaagagtc ccatttcact
                                                                      600
ggggctttaa ccgtctgaat ctggtccttg gccncaqaqa qaqcnttttt naqnaqqccc
                                                                      660
nenttttggg cecegttntt ttttccagca ngetteeett taattcatte netteeggg
                                                                      720
ctqqqqqttq caaaacntqc tqqntqacct tt
                                                                      752
      <210> 409
      <211> 736
      <212> DNA
      <213> Homo Sapiens
      <400> 409
ggcgtgtcaa aactaacgta cctgtcaagc tctttgcccg ctccacagct gtcaccacca
                                                                       60
gctcagccaa gatcaagtta aagagcagtg agctgcaggc catcaagacg qaqctqacac
                                                                      120
agatcaagtc caatatcgat gccctgctga gccgcttgga gcaqatcqct qcqqaqcaaa
                                                                      180
aggecaatec agatggcaag aagaagggtg atggaggtgg egecagegge ggeggeggeg
                                                                      240
gtggtggtgg cagcggtggc ggtggcagtg gtggtggcgg tggcggtggc aacagccggc
                                                                      300
caccageece ccaagagaac acaaettetg aggeaggeet geeceagggg gaageacgga
                                                                      360
cccgagacga cggcgatgag gaagggctcc tgacacacag cgaggaagag ctqqaacaca
                                                                      420
gccaggacac agacgcggat gatggggcct tgcagtaagc agcctgacag gagcaatqqc
                                                                      480
caccagcagg tgaagggcat cgctgcccag gcctcaagcc gggcacccaa ccctqgatqc
                                                                      540
cacceccag egggtaccag aggaaagetg cageaggeeg ceteeteece caacgeatne
                                                                      600
cagocagtgo catgeotet geaggtggag ttactggcot acteetteec atgaaccett
                                                                      660
cottgtotgc acttgccagg ccagagggta gagcacangg gtttccccat acttaccttc
                                                                      720
ccttcccagg acactt
                                                                      736
      <210> 410
      <211> 766
      <212> DNA
      <213> Homo Sapiens
      <400> 410
gggatccaat ctctttattg tcagggtccc ctccctgngg ccccccgcca aacctataga
                                                                       60
aaaaacccaa gcctgggagt gtcctgggga ggggaggtag tatggggaaa cccctgngct
                                                                      120
ctaccetetg geetgggeag tgcanacagg gagggeteat ggggaaggag taggeeagta
                                                                      180
actocacctg cagaggacat ggcactggct gggatgcgtt gggggaggag gcgcctgctg
                                                                      240
ccagetttee tetggtacce getggggggt ggeatecagg gttgggtgee eggettgagg
                                                                      300
cctggggcag cgatgccctt cacctgctgg nggccattgc tcctgtcaqg ctqcttactq
                                                                      360
caaggcccca tcatccgcgt ctgtgtcctg gctgtgttcc agctcttcct cqctqtqtt
                                                                      420
caggageeet teeteatege egtegteteg ggteegtget teeceetggg geaggeetge
                                                                      480
ctcanaagtt gnqttctctt qqqqqqctqq tqqccqqct qttqccaccq qcaccqqcac
                                                                      540
caccactgnc accgncaccg ctgcaccacc accgncggcg cccgncgntt ggcgccaact
                                                                      600
tcatnaccet tcttcttgca tctggaatgg ncttttgctt ncgcancgaa ctgntccaaa
                                                                      660
egggttaanc agggcatcna tatttggact tgaactgggn caancttcog nettgaangg
                                                                      720
ccttgcaagc ttnaatggtc tttaacttqa actttqqctt qaacct
```

766

<210> 411

<211> 812

<212> DNA

120

180

240

300

720

780

812

840

857

<213> Homo Sapiens

```
<400> 411
ggcgtgtcaa aactaacgta cetgtcaagc tetttgcccg etccacaget gtcaccacca
```

geteageeaa gateaagtta aagageagtg agetgeagge cateaagaeg gagetgaeae agatcaagtc caatatcgat gccctgctga gccgcttgga gcagatcgct gcggagcaaa aggccaatcc agatggcaag aagaagggtg atggaggtgg cgccagcggc ggcggcggcg gtggtggtgg cagcggtggc ggtggcagtg gtggtggcgg tggcggtggc aacaqccqqc

caccagecee ccaagagaac acaacttetg aggeaggeet geeceagggg gaagcaegga 360 cccgagacga cggcgatgag gaagggctcc tgacacacag cgaggaagag ctggaacaca 420 gccaggacac agacgcggat gatggggcct tgcagtaagc agcctgacag gagcaatqqc 480 caccagcagg tgaagggcat cgctgcccca ggcctcaagc cgggcaccca accctggatg 540 ccaccccca gegggtacca gaggaaaget ggcagcagge gcctcctccc ccaacqcatc 600 ccagecagtg ccatgtcctc tgcaggtgga gttactggcc tactccttcc ccatgagccc 660

teeetgtetg cactgeecag gecagagggt agageacagg ggttteecca tactacetee cetececagg acaeteecag gettgggttt tttetatagg tttggegggg ggceneaggg aggggaccct gacaataaag agattggatc cc

<210> 412 <211> 857

<213> Homo Sapiens

<212> DNA <400> 412

aaccatctta gcccccaaaa tgatgatgct ctggagacac gagctaagaa gtctgcatgc 60 tetgacatge ttetegaagg tggtcctact acagettetg taagagagge caaagaggat 120 gaagaagatg aggagaagat tcagaatgaa gattatcatc acgagctttc agatggagat 180 ctggatctgg atcttgttta tgaggatgaa gtaaatcagc tcgatggcag cagttcctct 240 gctagttcca cagcaacaag taatacagaa gaaaatgata ttgatgaaga aactatgtct 300 ggagaaaatg atgtggaata taacaacatg gaattagaag agggagaact catggaagat 360 gcagetgetg caggaccege aggtagtage catggttatg tgggttccag tagtagaata 420 tcaagaagaa cacatttatg ctccgctgct accagtagtt tactagacat tgatccatta 480 attttaatac atttgttgga ccttaaggac cggagcagta tagaaaattt gtggggctta 540 cageetegee caeetgette acttetgeag cecacageat catatteteg aaaagataaa 600 gaccaaagga agcaacaggc aatgtggcga agtgccctct gatttaaaga tgctaaaaag 660 actcaaaact caaatggccc gaagttcgat gtatgaaaac tgatgtaaag gaatacactt 720 tcagaaataa aaagcacagt gctgcttctg gagacatgcn gacaagnctt tttttgctga 780

nccagcagnt ntggctgatg tggactgaaa cttttggcag aatgcaggat ttggatggac

tcctggcnaa agtctta <210> 413

<211> 790 <212> DNA

<213> Homo Sapiens

<400> 413

ctcaagtnga ttttattanc aaaaagngca aactattttg ancaaaagta aactatgagt 60 cacagentte ageaagacat canaenegga anagnganea atatteaeta agtaaaatne 120 agcanatgan atgtctntca catgtatatt naattattca tgctttttca atagtctntt 180 agtcaacttt cagngtaatt tccacaaata tatagcagnt caaacncaaa tgcaggancn 240 caanggcaaa gttnggcaac tgtttngggc taattatgag tntgaaagaa anccttatat 300 cacagtttca cgttcatgta anccactgng caacatgaat gaatntttaa angngttgac 360 nctgaaatca angtncaact aangaaanta aagaanaaaa gggggcttta aaatattngt 420 ngenetacag tegtatagta agaggeagaa aaaaatgaan gaattttaaa taatettaca 480 cgtgtntaca gggccaggaa cgtaatgaat ccatgttaac ttaatttcat ttaaaattnc 540

```
atttgtagaa gtcncncaac agaaagatcc atgcggttga acagtgtgcc tgtncttgac
                                                                      600
aagtgagaga agatcettet ccaaaaggga gatteagtet agggntaett eagttnttee
                                                                      660
catagngget acagggcana atettttca aaagcaattt tetggteeet aaatetacag
                                                                      720
genetantgg gacetgtaat taaaaneece caattttaag gangattttt aaaceceact
                                                                      780
taagctttta
                                                                      790
     <210> 414
     <211> 1063
      <212> DNA
      <213> Homo Sapiens
      <400> 414
gnnnnntnen gecannenan agnntgntea eeteenagat nngggatggn ntggtgaeee
                                                                       60
nggenttgac tetgnnnngc gacntnttgc tagtetteag gnetectact acaggetttg
                                                                      120
taatganctn nacttgnctt gagacagcct angggagacc acggatgntc tattannngn
                                                                      180
geangetgnn etatngcaan ntgggnetna nnetgnanaa teannngeng ecatgnnaga
tnaatagaag ctcatnntgt cataaatggn ccatgactta taaatnaagt ggactggata
                                                                      300
tettatgaca gnagenatnt angettngtg ngnagttaan gettecacet nnggangata
                                                                      360
agaggnenae ettgtntnan etnntgenge tgnaaganee agaganannt geentgggag
atteatggcc natgatagta tatnatetet tacaccanat atgeettget gnatencaaa
                                                                      480
tetqqacata cacgntttee ceateteaga ettenttgea geagetgett neenaennta
                                                                      540
cccatgaacg acanntgctt acgntanagc ntgaacnatn tgatgagett entcagecca
                                                                      600
gaceteatea titegagaag cacatgteee tgegtiteaa cetatggatg aggaaaagne
                                                                      660
ctngngetta aagetettga aaateettta caenngaane nttetgeata gettnaatea
                                                                      720
ctctgagntg cccacatngn gtnctggaag gcttccggnt annatggttc cgggacctnc
                                                                      780
aaccettceg tttgaatnet nacntgaceg ganagggtnt geetgggtte ettgngeene
gaacttaacc ntcacaattn ggntgngant tentggtaac ggentaatet neeccaggaa
                                                                      900
ttggccgctg cttcnacggg aattaanggg aatctttccc atcccnctta nnaccagtta
                                                                      960
ggngccentt tttcaatttt engacteeg gagettttaa aaaceggggg cettaggttn
                                                                     1020
cttggatggc nttgggggtn gcccccttta gggaattaaa ggg
                                                                     1063
      <210> 415
      <211> 824
      <212> DNA
      <213> Homo Sapiens
      <400> 415
gtttgattnt aacaaaannt attatgcaca aatnacnnag gntanagact ctnncatctn
                                                                       60
anatnaaaat ancagttata attacacaca taatataggt accttataca atgattccaa
                                                                      120
taaatatcac aggaaataca ntgcattttc aagntgnana gacnaatact tnctcattca
                                                                      180
cagngnttga catanganag cetatttaca tanenatetg tataaagtca tgetetnant
                                                                      240
ancaggntat ncagngctgn gccancacaa tgntttnaga angtgaagaa ccggncaaac
                                                                      300
cactnntggn gctggggatc tgganaagcc acctgnanaa gcttcactct gagcangact
                                                                      360
cannaatgnc ttgngccctt taggtggcac tggctgtgga agtggttaag ctgctgctga
                                                                      420
actcaattcg tggactgnag aattaggaat ggganccagg cggttnggat gaccattgcc
                                                                      480
cactenanca natnecaaag nnetnagaan gggaacnete caaneetget tnatggngat
                                                                      540
taancatnet tettettttg ettaaceeat ggattanane acancagena gtaengaett
                                                                      600
ggntttaccc ncttcngttg gaaataagga ttcttgatng actaaannnc agctggtnaa
                                                                      660
aacntaactn tccctcaatt tagcnttatt ntatgaance ggggcctant ntentgttca
                                                                      720
aaaangngnt tttaagttcc ggtaatccta ccggnaatta nttgggggct ntgaattcan
                                                                      780
encecttana anatttnggn ttaccatttn aatccaaagg ccac
                                                                      824
      <210> 416
```

<211> 838

<212> DNA

<213> Homo Sapiens

<400> 416

```
ctcaaaagtg gaaaatatgt acaatctgta atgagctttt tcctgaaaat gtctatagtg
                                                                       60
tgcacttcga aaaagaacat aaagctgaga aagtcccagc agtagccaac tacattatga
                                                                      120
aaatacacaa ttttactagc aaatgcctct actgtaatcg ctatttaccc acagatactc
                                                                      180
tgctcaacca tatgttaatt catggtctgt cttgtccata ttgccqttca actttcaatg
                                                                      240
atgtggaaaa gatggccgca cacatgcgga tggttcacat tgatgaagag atgggaccta
                                                                      300
aaacagattc tactttgagt tttgatttga cattgcagca gggtagtcac actaacatcc
                                                                      360
atctcctggt aactacatac aatctgaggg atgccccagc tgaatctgtt gcttaccatq
                                                                      420
cccaaaataa tcctccagtt cctccaaagc cacagccaaa ggttcaggaa aaggcagata
                                                                      480
tccctgtaaa aagttcacct caagctgcag tgccctataa aaaagatgtt gggaaaaccc
                                                                      540
tttgtcctct ttgcttttca atcctaaaag gacccatatc tgatgcactt gcacatcact
                                                                      600
tacgagagag gcaccaagtt attcagacgg tcatccagtt tgagaaaaag ctnacctaca
                                                                      660
aatgnatcca ttggcttggt gngnatacca gcaacatgga ncggctnaac tatcacttct
                                                                      720
gnatctagnt cactggangg gccgtttggn aagganccca aatgqqccaq qataagacaa
                                                                      780
aaggeneect tingggitaa teagnettee aagteingea eetgignaac geacttae
                                                                      838
```

<210> 417 <211> 880

<212> DNA

<213> Homo Sapiens

<400> 417

```
aagcacaata cagcaattta tttagatgct taaaatgaat acaaagggaa aataaagatc
acaaaattat acatactaca acagtgtgtc atatattaga tggtataaat gaatccacca
                                                                      120
tgatggtgtt gaactaaaga taaaactaaa tatccaaaat gcagcactca ttggtttgct
                                                                      180
getteaacac aacacacttt tatacagate taaaaggtgt caaaattagt agetgeaaag
                                                                      240
tcaattcttg catgtgattt tagcttaaaa gatttcagaa aacagatctg aaataccagt
                                                                      300
ttttgttttt gacagctgta atgtcaagga tattcagaac aagaaaaatc ctataataca
                                                                      360
agagagtcca gatatatatc ttacgtggct ggcctctgtt gcaagattgt acaaggttat
                                                                      420
gtgcaaaaac taagtctgtc caaaaagtcc atactagcgc agttttgagc ttttgctagg
                                                                      480
taaactagat agagcgttta ttacacagca agggcaacac taaaaaaaga aatctatgat
                                                                      540
gggcacacag taacaggatc atgagcatca cttgaatagg tctaaaagac tgtcaaatat
                                                                      600
acatttcaac tattcagaat gaatacatga aaaaaaatcg cttttcccaa aggtctacta
                                                                      660
tacncattan actgggagct tgnatgttgg gccctacact accatgggga attangttta
                                                                      720
acactintta aaaacatitg gccaatcatt tencagangg gaaagaaatg tigaaaagge
                                                                      780
cgataaaata aacccttggg ttttcctcgg gggattcatg gagtcacccg ccttaatggg
                                                                      840
ttttcacatt taagttaccc gggcttggca aaaaaaggtt
                                                                      880
```

<210> 418

<211> 763

<212> DNA

<213> Homo Sapiens

<400> 418

```
agaagatggc ggaagcggaa tttaaggacc atagtacagc tatggatact gaaccaaacc
                                                                       60
cgggaacatc ttctgtgtca acaacaacca gcagtaccac caccaccacc atcaccactt
                                                                      120
cotcotctcg aatgcagcag ccacagatot otgtotacag tggttcagac cgacatgctg
                                                                      180
tacaggtaat tcaacaggca ttgcatcggc cccccagctc agctgctcag taccttcagc
                                                                      240
aaatgtatgc agcccaacaa cagcacttga tgctgcatac tgcagctctt cagcagcagc
                                                                      300
atttaagcag ctcccagctt cagagccttg ctgctgttca ggcaagtttg tccagtggaa
                                                                      360
gaccatctac atctcccaca ggaagtgtca cacagcagtc aagtatgtcc caaacgtctg
                                                                      420
tagaaattct tatggactgg aatcttcctc aaggcttact ttgttcctgg gatgcagtgg
                                                                      480
tgcatagaag atagggcatt gactcactca gacctggctt gcccagcatg cattgcaaca
                                                                      540
```

ataatgtgca agttattaaa gacatgagtg aattogtgac agattg agagttttot acaacaaaaa actggottat ggaacatata ottotg gttggggotg agtgtaagaa aatgcaagot gcaaatotgg ottace tggaaatgng tgotttaaan gcaacttgta aaattggatt too	cttg agttgaatgt 660
<210> 419	
<211> 753	
<212> DNA	
<213> Homo Sapiens	
<400> 419	
ggactattta cttttaatgt aattatcaat acagtcggtt taaatc	tacc attttgttgt 60
tggttttcta tttgtttcat ttgttctctc ttcctttttt tcacct	cttc aggattattt 120
tggattcact acttttttta nagngtcgtt ttaccactac tattgg	ccta ttacctgtat 180
ctctttttt taatggcatt tctctaggat ttacaatatg catctt	tagc ttatagtatc 240
ttgaaatagt agngtaacac ttcacaaata gagtaaaaac cttata	atct tccatttttc 300
cottocttot titigigotat tgatgacnoa tattiactoo tacaga	tatt ataaacaaat 360
tgatatacnc acattatcat ttttgcttta catactcaat tatctt	ttaa ataaaataaa 420
aattgaggag aaaatccgtt atattatcta cacatttact gtttcc	agca cttttcattt 480
ctttgngtag attcaaattt ctgncatctt ccctttgccc aaagaa	cttc ttttcatctt 540
tottatagtt caggtotgct ggcaaccaat tagctcagcc tttggt	ttgc taaaaaagtt 600
catatattat cttgattttc aaatggnatt taagctctat ataggattaattcctt catcattggg aagangtcat aaagggcttg caaagg	attc ttaggtgact 660
tacatttttt natttggtaa tetttettae eea	
sasasses macetygeaa ecetetetat eca	753
<210> 420	
<211> 799	
<212> DNA	
<213> Homo Sapiens	
400 400	
<400> 420	
gaaaaacgct ttgataccaa gaattaaaaa tgcttgtcta caaaca	tett ceettgeggt 60
togtgtaaat toattagtgt gottaggaaa gattttggaa tacttg	gata agtggtttgt 120
acttgatgat atcctaccct tcttacaaca aattccatcc aaggaa gggaatttta ggtatttaca aatgtacttt tactcataag aagttg	cctg cggtcctcat 180
gcagctggcc ggaaaagtgt tgcctcatct tattcccctg agtatt	ggaa tcaccaaaga 240
tettaateag tteaattett teattteegt cataaaagaa atgett	gaaa acaatcttaa 300
tgaacataag actaaactgg agcaacttca tataatgcaa gaacag	aata gattggagtc 360 caga aatctttgga 420
tataggaaat caaatgaatg tttctgagga gatgaaagtt acaaat	attg ggaatcagca 480
aattgacaaa gtttttaaca acattggagc agaccttctg actggc	agtg agtccgaaaa 540
taaagaggac gggttacaga ataaacataa aagagcatca cttaca	cttg aagaaaaaca 600
aaaattagca aaagaacaag agcaggcaca gaagctgaaa agccag	cago ctottaaacc 660
ccaagtgcac acacctgttg ctactgttaa acagactaag gacttg	acag acacactgat 720
ggataatatg tcatccttga ccagconttc tggtagtacc cctaaa	tott ctgcttcaag 780
tctttcactt ctggtcctt	799
<210> 421	
<211> 770	
<212> DNA	
<213> Homo Sapiens	
<400> 421	
	ctag tgaaagagta
gttcaatatg ggggacattc tggctcatga atctgaatta cttggatttagatttt gctgaatttg aagacacctt gaaaacattt tcaaaa	ctag tgaaagagta 60 gaat gcaaaataaa 120

aggaaaacca ttgtgtaaaa cagtaggcgg atctttcaga gactccaaat cattgacaat

<211> 859

```
tcagaaggat cttgtcgctg catttgacaa cggagaccag aaggtgttct tcgatctgtg
                                                                      240
ggaggagcac atttcaagtt ccatccgaga tggggactcc tttgcccaga agctqqaatt
                                                                      300
ctatctccac atccattttg ccatctatct tttgaagtac tctgtgggga gaccggacaa
                                                                      360
agaggagetg gatgaaaaga tttcctactt caaaacctac ctggagacca aaggggcagc
                                                                      420
cttgagccag accacagagt ttcttccttt ctatgccctt ccttttgttc ccaaccctat
                                                                      480
ggtgcacccc tcatttaaag aactcttcca ggattcctgg actccagagt taaagttgaa
                                                                      540
gttggaaaag tttctagctt taatatctaa agccagcaac acgccaaagc ttttaacaat
                                                                      600
atataaggag aatgggacan agtaacaaag aaatettgca gcagettcac cagcagetgg
                                                                      660
ntgaagettg aaccgtaggt caatgacata cetcaaacgg naccataaga tecaggeeeg
                                                                      720
actaccacaa totcantgga gtcacagcan aactggtggg attotottga
                                                                      770
      <210> 422
      <211> 733
      <212> DNA
      <213> Homo Sapiens
      <400> 422
caaaangaan gctttatttt gaattttaaa aatacataca tcttacactg taatcaaaac
                                                                       60
aaagcttaag aaagtcaatt cccgcttcct ttagccctga cttacactgg gtacccgttt
                                                                      120
ctgtggccgc cgggggtgac ggnectttgc aggggctcat ccccgctcca ctgcacatta
                                                                      180
gecageceet teegeettgt etteecegng ttggtcatga teeccaggta etcegnggte
                                                                      240
anaagcttet eteetgagag tteteegage tggggetgga teagttegte tttgteeana
                                                                      300
teggetteca tgatgteatg gneetettea teatetteat etteateate ateagattea
                                                                      360
agaacaccat ctggtagctc ttcggaattt agctgcttga tgatgaattc tatctggcgg
                                                                      420
atcatttcag cattgccttc tttgatgaag cagcgtagga tgtcttccat tcccattgct
                                                                      480
cttgcttcct cacgaatgga tggancagaa aggatgctgt acagagctcc attcacatac
                                                                      540
ggctgtatct catggttttc atggccaaga agatccgaaa ggactttgag caccgaggcc
                                                                      600
tgccaccttg gcacacatgg tcttccctgn gctgcggagg gcagaggttc atggagcaaa
                                                                      660
agccaccgag tactccaacg gggnagccag acagggcagn cagggtcctt tcanaacatc
                                                                      720
aacccagccc qaa
                                                                      733
      <210> 423
      <211> 862
      <212> DNA
      <213> Homo Sapiens
      <400> 423
catetyteca gggtgcateg ageegggagg geteaceage caggageage acqccaetee
                                                                       60
actececete geceateegt gtgcacaceg tggtegacag geetcageag eccatgacee
                                                                      120
atcgagaaac tgcacctgtt tcccagcctg aaaacaaacc agaaagtaag ccaggcccag
                                                                      180
ttggaccaga actccctcct ggacacatcc caattcaagt gatccgcaaa gaggtggatt
                                                                      240
ctaaacctgt ttcccagaag cccccacctc cctctgagaa ggtagaggtg aaagttcccc
                                                                      300
ctgetecagt teettgteet ceteceagee etggeeette tgetgteece tetteececa
                                                                      360
agagtgtggc tacagaagag agggcagccc ccagcactgc ccctgcagaa gctacacctc
                                                                      420
caaaaccagg agaagccgag gctcccccaa aacatccagg agtgctgaaa gtggaagcca
                                                                      480
tcctggagaa ggtgcagggg ctggagcagg ctgtagacaa ctttgaaggc aagaagactq
                                                                      540
acaaaaagta cctgatgatc gaagagtatt tgaccaaaga gctgctggcc ctggattcag
                                                                      600
tggaccccga gggacgaagc cgatgtgcgt caggccagga gagacggtgt caggaaggtt
                                                                      660
cagaccatct tggaaaaact tgaacagaaa gccattgatg tccangtcaa gtccaggtct
                                                                      720
atgaacttca agccaagcaa conttgaagc agatcaagcc cotggaggca atcatggaaa
                                                                      780
agggtgccgt ggcagcaaga caagggcaag aaaaatgctt ggaaatggcn qaaqatcccc
                                                                      840
acacnggaaa ccagcaggcc cg
                                                                      862
      <210> 424
```

<212> DNA

<213> Homo Sapiens

<400> 424

```
gagttatatt attactttat tttcttttt taaaatgtag cattaaagtc atccaacata
                                                                  60
cagatattcc tatggctcct ggcacatttt actototota aagtcaggta ttttaattat
                                                                 120
gagatgaaga aaatcatctc attaaaatgg caacatttct gataaatgtt tcatatttat
                                                                 180
240
aaccacagct aacaggtggt gggggtgccc aagtagacag ggctgcagaa caagcaacgg
                                                                 300
ggttaaactt ctcaaacaac aagcaacttc tttatttgta cagagtaaga atatagaaga
                                                                 360
aaagcatcat tttccttttt agccctttta ttagtgtttt gcctccaccc aagttactgc
                                                                 420
ataccaagca gctaataaaa accaactgac ttaaagtctc tgaaatgcat gcaacttaaa
                                                                 480
attecetaaa geacacateg gtteegagte tgatttttae agggeagagg etacqqtqet
                                                                 540
getgggttac caggggtgte tggcatgetg etggggtttg aagtegetge tgetgngget
                                                                 600
tetggetget gggtttetgt gtggggatet ttetgeattt ceageatttt tettggeett
                                                                 660
ggetgetgee aeggnaccea tetteatgaa tgeetgeaaa tggetggace tgntteaaag
                                                                 720
gttgctgggg ctggagttca ttagacctgg accttggccc tgggacatca aagggetttc
                                                                 780
tggtcaaggt ttttccaaga agggcctgga accttcctgg acancggntt tttctgggcc
                                                                 840
tggacgcnca attggggtt
                                                                 859
```

<210> 425 <211> 837

<212> DNA

<213> Homo Sapiens

<400> 425

```
cagaatggag gtggagtccc taaacaaaat gcttgaggag ctaagacttg aacggaagaa
                                                                       60
actaattgag gattatgaag gcaagttgaa taaagctcag tccttttatg aacgtgagct
                                                                      120
tgatactttg aaaaggtcac agctttttac agcagaaagc ctacaggcca gcaaagaaaa
                                                                      180
ggaagctgat cttagaaaag aatttcaggg acaagaagca attttacgaa aaactatagg
                                                                      240
aaaattaaag acagagttac agatggtaca ggatgaagct ggaagtcttc ttgacaaatg
                                                                      300
ccaaaagctt cagacggcac ttgccatagc agagaacaat gttcaggttc ttcaaaaaca
                                                                      360
gettgatgat gecaaggagg gagaaatgge cetattaage aagcacaaag aagtggaaag
                                                                      420
tgagetagea getgecagag aacgtttaca acagcaaget teagatettg teetcaaage
                                                                      480
tagtcatatt ggaatgette aageaactca aatgacccag gaagttacaa ttaaagattt
                                                                      540
agaatcagaa aaatcgagag tcaatgagag attatctcaa cttgaagagg aaagagcttt
                                                                      600
tttgcgaagc caaaacccaa agtctggatg aagagcagaa gcnacagatt ctaagaactg
                                                                      660
ggagaagaaa gtaaatgaac caagagactc agcaggaata ttatgaaagg gaacttaaaa
                                                                      720
anctgcaagt agaatggaag aagaggggct taattaacga nggccattct aagacttttg
                                                                      780
gaagaattag cttggaacne cttttggcaa ttgaacttgt encaggtaat gecattt
                                                                      837
```

<210> 426 <211> 724

<212> DNA

<213> Homo Sapiens

<400> 426

```
gattetaaca aaatttatta tgeagtaatt acaaaggtta aagaetette cateteaaat
                                                                       60
aaaaataaca gttataatta cacacataat atagtacctt atagaatgat tccaataaat
                                                                      120
atcacaggaa atacagtgca ttttcaagtt ggagagacaa atactttctc attcacagtg
                                                                      180
tttgacatag gaaageetat ttacataaca atetgtataa agteatgete ttagtaacag
                                                                      240
totatacaga getgtgccaa cacaattett teagaatgtg aagtaceggg caaaceaete
                                                                      300
ctggcgctgg ggatctggag aagccactgg agaagcttca ctctgagcag gactcaaaaa
                                                                      360
tgtcttgggc cetttaggtg gcactggctg tggaagtggt ttgctgctgt tgaactcaat
                                                                      420
atcgtggact ggagaattag gaatgggatc caggcggtta ggatgtccat tgcccactcc
                                                                      480
```

```
accagattcc agagcactta nattgggaac actcacaaac ctgtttgttg gtgatttatc
                                                                     540
attettette ttttgettag ccaatggatt aataacacca acagtaggae ttgagttaaa
                                                                     600
cactttggtg aaagttagtt tctcgaattg actaattcca gctgataaaa cttattatcc
                                                                     660
tcaattagtt tctttatgan ctgggcctct ttctgtaagc atggctttta attctggaat
                                                                    720
catc
                                                                     724
     <210> 427
     <211> 981
     <212> DNA
     <213> Homo Sapiens
     <400> 427
60
acacacacac acacactca aagagttana atcattacnt ncaaatgaaa gtcgtaatga
                                                                     120
tagatgatga tagntncaat gaanctgnga ncatanatta angaaacana naacantncn
                                                                    180
aaaggtccac aaatctggtc ctatgaaaag agtaaaatta ccaagactng gtgaaaganc
                                                                    240
ccannaaaan ncanagagag anagagagag agagaganac anagagagag aganaaaggg
                                                                    300
aaggcacacn taancnatat cagcaataaa angggnnact ttantacana ttctgcaanc
                                                                    360
attannnnna taatganagg atattatgaa cagttgtatg gcnatatgtt tgaaaactta
                                                                    420
gatgeegata tgtttgaaaa ettaaatgaa aeggaaaaat teettgaaga aecacaantt
                                                                    480
aaatttgaca caggtagaaa atntgaatgc agttngncct tcagtatctg tggggaaatc
                                                                    540
ggttncagaa ccactccccc antaccnaaa tttataattg ctcaagttcc tgatataaaa
                                                                    600
tggcaaagta tttgcatata ncctatccct accettttac atactttaaa taacctntga
                                                                    660
gttncttnat tatacctaac ataatgtaca tttctgtggc aaatcgntnn taatattgga
                                                                    720
ttttnaaaat tatnttantt ttggaatagg nngtantatt tcctgggget tttttttcc
                                                                    780
ccaaatattt tntaattccc caattnggtt ggaatcttgg gaaccccatg gnggggancc
                                                                    840
catangattt tgggaanggn ccaacttggg gccttngtaa ctttttaaag aaatngggaa
                                                                    900
ttetttgntn aanaattett neneccaaag aaaaceeett tggeeccana agttntttna
                                                                    960
aatggggaaa tttncccaaa c
                                                                    981
     <210> 428
     <211> 655
     <212> DNA
     <213> Homo Sapiens
     <400> 428
ataggacaac atgaacattg ttgagtcact gaagctaaac caaacttgct tttctgtaat
                                                                     60
aaacccaatt tggtcatgat ttaatatttt ttggatcgct ctggatttgg tttgctaata
                                                                    120
ttttattcat ccaagaaata ttcattagag aaattggcat gggatttttt tttcattgta
                                                                    180
atgtccttgt caggtatcaa ggctttttca gcctgataaa gcatattaag aaatgcttcc
                                                                    240
tetttteeta ttetetggaa aagattgtgt aatattgetg ttactaette etgtaatgtt
                                                                    300
tggtgaaatt cacaattgaa gacatctggg cctagcgtgt tctttgtagg aagaatatta
                                                                    360
agaaagaatt ccatttcttt aaaagttacg agcacagttg gccttccaga tctatggatc
                                                                    420
ccacatgagt tccagattca accaattgtg tattaaaaat atttgggaaa aaaaqccaca
                                                                    480
agaaataata caactataca aaataatata atttttaaaa tacaatataa caacgattta
                                                                    540
cacagaatgt nccattatgt taggnattat aagtaactca gaggntattt aaagnatgtg
                                                                    600
agaggnnatg gataggctat atgccaaata ctttgccant cttatantca gggaa
                                                                    655
     <210> 429
     <211> 788
     <212> DNA
     <213> Homo Sapiens
```

<400> 429

gagcagcaga gatttttgct gtgagaatta attaccagta acagttcaat atgggggaca

```
ttctggctca tgaatctgaa ttacttggac tagtgaaaga gtatttagat tttgctgaat
                                                                      120
ttgaagacac cttgaaaaca ttttcaaaag aatgcaaaat aaaaggaaaa ccactgtgta
aaacagtagg cggatctttc agagactcca aatcattgac aattcagaag gatcttgtcg
                                                                      240
ctgcatttga caacggagac cagaaggtgt tettegatet gtgggaggag cacatttcaa
                                                                      300
gttccatccg agatggggac tcctttgccc agaagctgga attctatctc cacatccatt
                                                                      360
ttgccatcta tcttttgaag tactctgtgg ggagaccgga caaagaggag ctggatgaaa
                                                                      420
agattteeta etteaaaace taeetggaga ecaaagggge ageettgage eagaceacag
                                                                      480
agtttettee tttetatgee etteetttg tteecaacce tatggtgeac eceteattta
                                                                      540
aaqaactett ccaggattee tggactecag agttaaagtt gaagttggaa aagtttetag
                                                                      600
ctttaatatc taaagccagc aacacgccna agcttttaac aatatataag gagaatggac
                                                                      660
aaagtaccaa gaaatcttgc agcagcttca ccacagctgg ttgaagctga acgtaggtca
                                                                      720
gngccttcct taaacgggcc aattaagaat ccaggccgac taccacaatc ttantggggg
                                                                      780
teccaqea
                                                                      788
      <210> 430
      <211> 655
      <212> DNA
      <213> Homo Sapiens
      <400> 430
caaaatgaat gotttatttt gaattttaaa aatnoataon tnttacnotg naatcaaaac
aaagettaan aaagtcaatt eeegntteet ttaneeetga ettaenetgg gtneeegtt
                                                                      120
ntggggccnc cgggggngac gggcctttgc aggggctcat ccccgntcca ctggacatta
                                                                      180
necaqueect teegeettgg etteecegng ttggtcatga nececaggin eteegnggte
                                                                      240
aaaagctint ntcctgaaag ttctccganc tggggctgga tcanttcgtc tttgnccaaa
                                                                      300
neggntteea tgatgneatg ggeetnttea teatetteat ttteateate ateanattea
                                                                      360
anaacnccat ntggnanctt ttcggaattt aactgcttga tgangaattc tatntggngg
                                                                      420
ancatttcag cattgccttn tttgaagaac cancgtagga nggtttccat tcccattggt
                                                                      480
nttgntteet cacgaatgga tggaacanaa aggatgetnt acananetee atteacatae
                                                                      540
ggntgnatnt catggntttc atggccaana anaatcccaa aggctttgag cccaggnctg
                                                                      600
gecettggea caaatgttnt teetggette egaaggeeaa ggtteattga ecaaa
                                                                      655
     <210> 431
      <211> 844
      <212> DNA
      <213> Homo Sapiens
      <400> 431
ggaagaagga agaggtaact ataactaccc aatattgcag ccatggagtc catgcttaat
                                                                       60
aaattgaaga gtactgttac aaaagtaaca gctgatgtca ctagtgctgt aatgggaaat
                                                                      120
cctgtcacta gagaatttga tgttggtcga cacattgcca gtggtggcaa tgggctagct
                                                                      180
tggaagattt ttaatggcac aaaaaagtca acaaagcagg aagtggcagt ttttgtcttt
                                                                      240
gataaaaaac tgattgacaa gtatcaaaaa tttgaaaagg atcaaatcat tgattctcta
                                                                      300
aaacgaggag tocaacagtt aacteggett egacaceete gaettettae tgteeageat
                                                                      360
cctttagaag aatccaggga ttgcttggca ttttgtacag aaccagtttt tgccagttta
                                                                      420
gccaatgttc ttggtaactg ggaaaatcta ccttccccta tatctccaga cattaaggat
                                                                      480
tataaacttt atgatgtaga aaccaaatat ggtttgcttc aggtttctga aggattgtca
                                                                      540
ttcttgcata gcagtgtgaa aatgggtgca tggaaatatc actcctgaaa atataatttt
                                                                      600
gaataaaagt ggagcctgga aaataatggg ttttgatttt tgngtatcat caaccaatcc
                                                                      660
ttctgaacaa gagcctaaat ttccttgtaa agaatgggac ccaaatttac cttcattgng
                                                                      720
tettneaaat eetgaatatt tggettetga ateetaettt etgngaactt gtgaaaccag
                                                                      780
ccagtggata tgggattcnt ttaggaactg gtatggaatg ccgggatttt aataaaaggg
                                                                      840
qaaa
```

<210> 432

844

```
<211> 807
      <212> DNA
      <213> Homo Sapiens
     <400> 432
atcaaagcta aaatttattt ggtgcatact cctcttgata tcaggtatgt tcgcatatac
                                                                       60
ctttttcttt catgtgtaaa aacaaccatg tgaggtattt tacaggtcaa aagaaaacaa
                                                                      120
aaactacttc cttattcagt gtaaaggagg cttataagca ttccaaaata aaaacaaaca
                                                                      180
aaaaccaqac aagtacataq totatttoca tttootttta tacatcotot otatatatca
                                                                      240
cacatttagc aataggagaa tagagaacta attcaaatgc aagggaatct tttttgtaga
                                                                      300
ttctgttgac agatgctctt taacctaaac attttctact ctaaacataa cggacttaat
                                                                      360
tgtcttcagt acgtgaaata attttaaggt gatctagtac tttgaaaatt tcattcactt
                                                                      420
aagaacactt aagctgaaaa atagcactat ttttcagagg caatttctca acagaaaaag
                                                                      480
gcaatggtaa cagttcaatt gatggaaatg gttgaaataa aatacctgaa gtagaaaaaa
                                                                      540
ggtgtaggaa caattttgta aaaacatagc accattacct caacgaatga acaaatttta
                                                                      600
catactggat ttttttcaaa tgacttattt tcatatttag tagttcaagg tctataagct
                                                                      660
ggtatattaa gctttctttc tggttaagag ntcaacactt acatcatggt attttacnaa
                                                                      720
attaaaaacc aatttcttaa ataaaccgng gctcctaaaa tggtaccaag gaaaaattct
                                                                      780
tcaataccta atttaattcc ataagga
                                                                      807
     <210> 433
     <211> 866
     <212> DNA
     <213> Homo Sapiens
      <400> 433
cttcagccca gatgcagaat gggggcccct ccacaccccc tgcatcaccc cctgcagatg
                                                                       60
geteacetee attgetteee cetggggaac eteccetgtt agggacettt eeeegggace
                                                                      120
acacetettt ggcactagtt cagaatggtg atgtgtegge eccetetgee atacteagaa
                                                                      180
caccagaaag cacaaaaccg ggtcctgttt gtcagccacc agtgagtcag agccgctccc
                                                                      240
tgttttette tgtecegtee aagecaccaa tgtetetgga geeteaaaat gggacgtatg
                                                                      300
caggaccage gecageatte cagecatttt tetteaetgg ageattteea tttaatatge
                                                                      360
aagagetggt actcaaggtg agaattcaga acccatetet tegagaaaat gatttcattg
                                                                      420
aaattgaact ggaccgacag gagctcacct accaagagtt gctcagagtg tgttgctgtq
                                                                      480
agetgggtgt taatccagat cangtggaga ngatcagaaa gttacccaat actctgttaa
                                                                      540
ggaaggacaa ggatgttget egaeteeaag attteeagga getggaaetg gttetgatga
                                                                      600
taaqtgaaaa taattttctg ttcanaaatg ctgcatccac actgactgaa aggccttgct
                                                                      660
ataacaggag agettcaaaa actgacttac taatgcacag ggacttttat cactggagta
                                                                      720
ttatgacagt gngcatcacc ttntgggccc aaggaccaag ccattggtct aaaaggcctc
                                                                      780
aaaatgeece ggganggeet etggtggeea tggeattagt atatactaac catcattetg
                                                                      840
gccaggtaag gaagcccctg gacccc
                                                                      866
      <210> 434
      <211> 764
      <212> DNA
      <213> Homo Sapiens
      <400> 434
caaaataacc tttatttttg atacaaaaat aaagatgcta actcctttag ctcagtttcc
                                                                       60
cacaataacc tttaaaatag caacagattc agtctcaaaa attgcttttc atttgtagtg
                                                                      120
gaaaatgaaa gtggagaaca tggaacagca atatttgngc tcttctcata ggatgcagtt
                                                                      180
acacacacat atgactggaa tcacttcaga gtaaaaaaaa agtgggctgg gtgcagtggc
                                                                      240
tcacacctgt aatcccagca ctttgggagg ccaaggacag gagcatcact taaggccaga
                                                                      300
agtttgagac cagcetgggc cacatagtga gaccetgtet etatgggegg ggtgggggtg
                                                                      360
```

gggggcattg taaaaaagca gttgttcttt tanaaggcat cagagagccc tntagtgacc

```
acgaagggga gttaatgcag agatgactcg agacagagaa gcagtcatga gtgtttacaa
                                                                      480
aggaaaaagt gagggaggga aagctctttt ggttaacagc atatttacaa ttagttaact
                                                                      540
gnattettaa ataettttaa eetgagtaac atttataaat atgttatagg aaaceteaca
                                                                      600
gtcacaagtc acactagaat ccatctgtcc agtatctggg ctttccccac accagaatcc
                                                                      660
atotgtocag tatotgggot ttoccogagte ttoctottot cataagttoc caanggoage
                                                                      720
anaagtgtga agcatgcaca ccaaggaaaa acgcattcca gccc
                                                                      764
      <210> 435
      <211> 834
      <212> DNA
      <213> Homo Sapiens
      <400> 435
agattttgtt aattttccta caaaaaatgg atttgctact aaccaaaacc cctcctgatg
                                                                       60
agataaagaa cagtgttcta cccatggttt acagagcact agaagctcct tccattcaga
tecaggaget etgtetaaac atcattecaa eetttgeaaa tettatagae tacceateca
                                                                      180
tgaaaaacgc tttgatacca agaattaaaa atgcttgtct acaaacatct tcccttgcgg
                                                                      240
ttcgtgtaaa ttcattagtg tgcttaggaa agattttgga atacttggat aagtggtttg
tacttgatga tatcctaccc ttcttacaac aaattccatc caaggaacct gcggtcctca
                                                                      360
tgggaatttt aggtatttac aaatgtactt ttactcataa gaagttggga atcaccaaag
                                                                      420
agcagctggc cggaaaagtg ttgcctcatc ttattcccct gagtattgaa aacaatctta
                                                                      480
atottaatca gttcaattot ttcatttccg tcataaaaga aatgottaat agattggagt
                                                                      540
ctgaacataa gactaaactg gagcaacttc atataatgca agaacagcag aaatctttqq
                                                                      600
atataggaaa tcaaatgaat gtttctgagg agatgaaagt tcaaatattg ggaatcagca
                                                                      660
aattggcaaa gtttttaaca acattggagc agaccttntg actggcagtg agtccgaaaa
                                                                      720
taaagangac gggttacaga ataaccttaa aagagcatcc ttaccacttg gaggaaaaac
                                                                      780
caaaatttgc caaaagaacc aggaccggcn ccgaagctgg aaaagccgca ggct
                                                                      834
     <210> 436
      <211> 812
      <212> DNA
      <213> Homo Sapiens
      <400> 436
acagaagtaa agtttattac atttgaaaca atacagcaga aacctcaaaa gtttactcat
                                                                       60
aaatatagtt taattottac aaatottott ttgaaaatgc aattoatata tgotgcaacc
                                                                      120
tcagaagttt gaatttgaaa tgaaatatga aggtagtagt cagggaagtc acatcagagt
                                                                      180
gccttgtcaa atatccaaac aaatcagcac atacctcttc cttgatacag gaggaaaaaa
                                                                      240
gtgattctaa atatatccaa gtgaatgcag aaaaatacat tactatttga ggcagaccat
                                                                      300
gctaaaatat aatttacaat gattagtttg cacttaagat ggttaataac gcatttaaac
                                                                      360
caatgaaatg aaggttaagt tgaattttgt agtatttgct cagtctctgt actaaacaat
                                                                      420
agttcatctg aaaaagtttgg aaaaagcaaa taacctgata cttctcttta tgcttatcat
                                                                      480
tttctcactg tcatcttaaa tgcaaacaaa tcaatacagc atcaagattt tttacatatt
                                                                      540
aaaatgaaga ctaatgactc atagactgng taccatatag tacttaatag atgagcttgc
                                                                      600
aatgaccatc acctcaattt tttaaataac accaagatcc acaagccaaa ataaacattt
                                                                      660
gattaaaaag ttatggtatt caagataact cagtttcctt tttctctttg agattgggna
anggotgggt otttaaaaaa cootggaaaa gggagttggg taaagaggga aaaaaatoot
                                                                      780
tcaangettt taaaaaaact tcnactgggt ta
                                                                      812
      <210> 437
      <211> 842
      <212> DNA
      <213> Homo Sapiens
```

<400> 437

780

826

```
gtggaagagg cgtacctatt tgcaaagtgc agagcaggca tggattgcca attctggaac
                                                                       60
agagcaaagc cccaacttgc cctccactgg tgatgtcaca cccacccatg aagagcctgc
                                                                       120
ctctagggtt gttgaatgtt gggtcacgaa gatctcaacc tggccaaaga agagaaccca
                                                                       180
gaaagatcat cacagtttct gtaaaagaag atgtacacct gaaaaaggca gaaaatgcct
                                                                       240
ggaagccaag ccaaaaacga gacagccaag ccgatgatcc cgaaaacatt aaaacccagg
                                                                       300
agotttttag aaaagttega agtatettaa ataaattgae accaeagatg tteaatcaac
                                                                       360
tgatgaagca agtgtcagga cttactgttg acacagagga geggctgaaa ggagttattg
                                                                       420
acctggtett tgagaagget attgatgaac ccagtttete tgtggettac gcaaacatgt
                                                                       480
gtogatgtot agtaacgotg aaagtaccca tggcagacaa gcctggtaac acagtgaatt
                                                                       540
teeggaaget getactgaac egttgecaga aggagtttga aaaagataaa geagatgatg
                                                                       600
atgtetttga gaagaageag aaagaaettg aggetgeeag tgeteeagag gagaggacaa
                                                                       660
ggetteatga tgaactggaa gaageeaagg acaaaageee ggeggagate cattggeaac
                                                                      720
atcaagttta ttggagaact cttttaaact caaaatgctt gacttgaagc catcattgca
                                                                       780
tgactgtgtg gtgaagctgc ttaagaaccn ttgatgaaga atccctggaa tggcctgtgt
                                                                       840
                                                                       842
      <210> 438
      <211> 678
      <212> DNA
      <213> Homo Sapiens
      <400> 438
aaactngcan tgtntgtntt tattttgtnc tttatatttt caaagngaaa agaaatanna
                                                                       60
ctgagncaat ntctttttgt ntttttaaan atttgtncta tgtatttaca ngccttaaaq
                                                                       120
nngctctaaa gatntcaaga gnattaanag nacttttntc agggnagcac tnttttttt
                                                                       180
ttaaacantt nttggngttc tgtggnccac annatttcct tntgtntcaa ngtnatgtat
                                                                       240
gtnttgatna cnatngngat nttttaaann ttntgaanca agctgagagg cnngcanaaa
                                                                      300
gatntgange ennaaaaaaa aaaatetttn ttacettgtn caccecaaac tttttcaaat
                                                                      360
ctggnctaaa tgctntacct taaaacanac atgaggggca tcttgaaggg gagggaaant
                                                                      420
tatttctctg cntttctatn atacangtng tttacanaaa ctgngaatta naaaattaca
                                                                      480
ctggnatttg cngaccttaa aataaattaa aagtnctcaa ctntttttt ttttgntaaa
                                                                      540
cnttttttta agnatgannc cntggttaaa aagaaaagnt ttaaaccgaa aatattttct
                                                                      600
ataaataata cctggatttt ggntttaggg ccccgccct aaggnttgna ggttactttt
                                                                       660
ntccnangac ctttttcc
                                                                       678
      <210> 439
      <211> 826
      <212> DNA
      <213> Homo Sapiens
      <400> 439
gaccetttac caacaaatga aaatgatgat gatatatgca agaaaccetg tagtgtagca
                                                                       60
cctaatgata ttccactggt ttctagtact aacctaatta atgaaataaa tggagttagc
                                                                       120
gaaaaattat cagccacgga gagcattgtg gaaatagtaa aacaggaagt attgccattg
                                                                       180
actettgaat tggagattet egaaaateee eeagaagaaa tgaaactgga gtgtateeea
                                                                       240
geteccatea eccettecae agtteettee ttteetecaa etectecaae teetecaget
                                                                       300
tetectecte acactecagt cattgtteet getgetgeea etactgttag ttetecgagt
                                                                       360
getgecatea cagtecagag agtectagag gaggacgaga geataagaac ttgeettagt
                                                                       420
gaagatgcaa aagagattca gaacaaaata gaggtagaag cagatgggca aacagaagag
                                                                       480
attttggatt ctcaaaactt aaattcaaga aggagccctg tcccagctca aatagctata
                                                                       540
actgtaccaa agacatggaa gaaaccaaaa gatcggaccc gaaccactga agagatgtta
                                                                       600
gaggcagaat tggagcttaa agctgaagag gagctttcca ttggcaaagt acttgaatct
                                                                       660
gaccaggata aaatgagcca ggggtttcat cctgaaagag acccctntgg cctaaaaaaa
```

gtgaaaagct gtggaagaaa atggagaaga actgagccag accgtaatgg ggcctgaaag

ggttctgang gtgaaggaat agatgcttaa ttcanqcttc cccaqa

```
<210> 440
      <211> 689
      <212> DNA
      <213> Homo Sapiens
      <400> 440
aaatatttgt totatgtatt tacaagoott aaagttgoto taaagattto aagagtatta
                                                                       60
agagtacttt tctcagggta gcactttttt ttttttaaac aattcttgga gttctgtggt
                                                                      120
ccacagcatt tccttctgtt tcaatgttat gtatgttttg attactattg tgatttttta
                                                                      180
aattttctga agcaagctga gaggcaggca gaaagatttg atgccaaaaa aaaaaaaatc
                                                                      240
tttettacet tgttcacece aaactttete aaatetggae taaatgetat aeettaaaac
                                                                      300
aaacatgagg tgcatcttga aggggaggga aatttatttc tctgcttttc tattatacaa
                                                                      360
gttgtttaca gaaactgcaa attaaaaaat tacactggca tttgcagtcc ttaaaataaa
                                                                      420
ttaaaagttc tcaacttttt ttttttgcta aacatttttt taagtatgag tccttgttta
                                                                      480
aaaaqaaaag attaaaacag aaaatatttt ctataaataa tacatgtatt ttggttttag
                                                                      540
tgctcccgcc ctaaggtttg aagtttactt ttatccagta cctttttcct ccatgatcac
                                                                      600
ettttttet ettteeeetn tteeaetegg geaeaegtgg ggggtttetg enanaattgg
                                                                      660
ccttgctgca ctgngaatgg gcnaaaacc
                                                                      689
      <210> 441
      <211> 883
      <212> DNA
      <213> Homo Sapiens
      <400> 441
ctttttatcc tggaccagga cctggggact tccccaatgc ttatggaacg cctttttacc
caagtcagcc ggtgtatcag tcagcaccta tcatagtgcc tacgcagcaa cagccgcctc
                                                                      120
cagccaagag agagaaaaaa actataagaa ttcgggatcc aaaccaggga ggtaaagaca
                                                                      180
taacagagga gattatgtct ggaggtggca gcagaaatcc tactccaccc ataggaagac
                                                                      240
ccacgtccac acctactcct cctcagcagc tgcccagcca ggtccccgag cacagecetg
                                                                      300
tggtttatgg gactgtggag agegeteate ttgetgecag cacccetgte aetgeageta
                                                                      360
gegaccagaa geaageteaa atagetataa etgtaccaaa gacatggaag aaaccaaaag
                                                                      420
atcggacccg aaccactgaa gagatgttag aggcagaatt ggagcttaaa gctgaagagg
agetttecat tgacaaagta ettgaatetg aacaagataa aatgageeag gggttteate
                                                                      540
ctgaaagaga cccctctgac ctaaaaaaag tgaaagctgt ggaagaaaat ggagaagaag
                                                                      600
ctgagccagt acgtaatggt gcttgagagt gtttcttgag ggtgaaggaa tagatgctaa
                                                                      660
ttcaggettc acagatagtt ctggtgatgg gggtacattt ccatttaaac cagaatnctg
                                                                      720
gaagectact ggtacttgaa ggtaagaaca gtatgaccag ggagtttetg gtggacttte
                                                                      780
cagttcatgc ctggctgnat tccaaaancc naagggcctg gcttctatta anggatgngg
                                                                      840
ttnttgacag gatcaaccaa ncccaaatgg ccaatgggga act
                                                                      883
      <210> 442
      <211> 777
      <212> DNA
      <213> Homo Sapiens
      <400> 442
gctaaacatt tttttaagta tgagtccttg tttaaaaaga aaagattaaa acagaaaata
                                                                       60
ttttctataa ataatacatg tattttggtt ttagtgctcc cgccctaagg tttgaagttt
                                                                      120
actititatee agraectiti teeteeatga teacettiti tietettiee eeteteeae
                                                                      180
tegtgeacae gtgggggttt etgegagaat tggeettget geactgtgat tggegaagae
                                                                      240
gtgaaacttt ttaaaaaaat acttaaattg tttcttttgt ttcattttgt gtatttgaag
                                                                      300
ttttagttat ceteagaete etettetget teeegeagee aegtgaagaa tgeegtgaca
                                                                      360
gatttcagag ccacgccctt cccattctgc tctgcagggt ccttgctgct ctcccatttg
                                                                      420
```

tagaaggeat ceteggagat caceteeteg teatatagae aateaaaaaa eateegeage

540

600

aaattggcag gttgatcaag ttttactatc gatgettgta gtgcataaag tgettgeagt

teettetetg natetgagte taggtacttg agtaagateg geactetetg ettgaaacag

```
cagtgtccac ttcttgaang tagaagaagt cggctattaa tagctggttt acaaacagca
                                                                      660
gtcatttaaa gctctaagga atggtaggtg aactentetg ggatttegge taaqaataag
                                                                      720
ccctttancc aggccaaaga acctggtcan tcaattcgct tttggccctc caataaa
                                                                      777
     <210> 443
     <211> 875
      <212> DNA
     <213> Homo Sapiens
     <400> 443
taacacagtg aattteegga agetgetaet gaacegttge eagaaggagt ttgaaaaaga
                                                                       60
taaagcagat gatgatgtct ttgagaagaa gcagaaagaa cttgaggctg ccagtgctcc
                                                                      120
agaggagagg acaaggcttc atgatgaact ggaagaagcc aaggacaaag cccggcggag
                                                                      180
atccattggc aacatcaagt ttattggaga actctttaaa ctcaaaatgc tgactgaagc
                                                                      240
catcatgcat gactgtgtgg tgaagctgct aaagaaccat gatgaagaat ccctggagtg
                                                                      300
cetgtgtege etgeteacca ceattggeaa agaettggae tttgaaaaag caaageeacg
                                                                      360
tatggaccag tactttaatc agatggagaa aattgtgaaa gaaagaaaaa cctcatctag
                                                                      420
gatteggtte atgetteaag atgttataga cetaaggetg tgeaattggg tatetegaag
                                                                      480
agcagatcaa gggcctaaaa ctatcgaaca gattcacaaa gaggctaaaa tagaagaaca
                                                                      540
agaagagcaa aggaaggtcc agcaactcat gaccaaagag aagagaagac caggtgtcca
gagagtggac gaaggtgggt ggaacactgt acaaggggcc caagaacagt cgggtactgg
                                                                      660
accectcaaa antectaaaa ateactaage etacaattga tgaaaaaant caetggacet
                                                                      720
aaagccagct aggcagctgg ggaaaaggca gcagtggtgg accaangcaa gtgaaactga
                                                                      780
geentaegge aagtgettne agttaaacag atetntgnee tgaacettca gaacettang
                                                                      840
gtcccgccat cacgcctgta aagttggatt cccga
                                                                      875
     <210> 444
     <211> 756
     <212> DNA
     <213> Homo Sapiens
      <400> 444
cttttaaact tgcaatgntt gnetttattt tggtetttat attttcaaag ngaaaagaaa
                                                                       60
tagtactgag tcaatttott tttggttttt taaatatttg gtctatgnat ttacnagcct
                                                                      120
taaagttgct ctaaagattt caagagtatt aagagtactt ttctcagggt agcacttttt
                                                                      180
tttttttaaa caattettgg agttetgngg necacageat tteettetgn tteaatgnta
                                                                      240
tgtatgtttt gattactatt gggatttttt aaattttctg aagcaagctg anaggcaggc
                                                                      300
ngaaagattt gatgccnaaa aaaaaaaaaa aatetttntt accttggtca ccccaaactt
                                                                      360
tntcaaatct ggactaaatg ctatacctta aaacaaacnt gaggggcatn ttgaagggga
                                                                      420
gggaaattta tttctctgnt tttctattat acnagttgnt taccgaaact gnaaattaaa
                                                                      480
aaattaccct ggcntttgca ggccttaaaa taaattaaaa gntctcaact ttttttttt
                                                                      540
gccaaacatt tttttaagta tgagnccttg nttaaaaaga aaagattnaa nccgaaaata
                                                                      600
ttttctataa ataatacntg nattttggtt ttaaggetee egecetaang nttgaaggtt
                                                                      660
actititatee nagnneeett titteeeteea tgaanaceee tittititene etitteeett
                                                                      720
ttcccacttn gggccccccc tnggggggtt tttgcg
                                                                      756
     <210> 445
      <211> 783
      <212> DNA
      <213> Homo Sapiens
      <400> 445
cagaaaatgg tgcttaccaa ctacatgttc cctcaacagc caaggactga ggatgttatg
                                                                       60
```

```
tttatatcag ataatgaaag ttttaaccct tcattgtggg aggaacagag gaaacagegg
                                                                      120
getcaagttg catttgaatg tgatgaagac aaagatgaaa gggaggcace teecagggag
                                                                      180
ggaaatttaa aaagatatee aacaccatae eeagatgage ttaagaatat ggteaaaact
                                                                      240
gttcaaacca ttgtacatag attaaaagat gaagagacca atgaagactc aggaagagat
                                                                      300
ttgaaaccac atgaagatca acaagatata aataaagatg tgggtgtgaa gacctcagaa
                                                                      360
aqtactacta cagtaaaaaag caaagttgat gaaagagaaa aatatatgat aggaaactct
                                                                      420
gtacagaaga tcagtgaacc tgaagctgag attagtcctg ggagtttacc agtgactgca
                                                                      480
aatatgaaag cctctgagaa cttgaagcat attgttaacc atgatgatgt ttttgaggaa
                                                                      540
totgaagaac tttottotga tgaagagatg aaaatggogg agatgogacc accattaatt
                                                                      600
gaaacctcta ttaaccagcc aaaagtcgta gcacttagta ataacaaaaa agatgataca
                                                                      660
aaggaaacag attetttate agatgaagtt acacacaata gcaatcagaa taccagcaat
                                                                      720
tggtcttete catctcggat gtctgattca gttctcttaa tactgatagt agtcaagaca
                                                                      780
cct
                                                                      783
      <210> 446
      <211> 866
      <212> DNA
      <213> Homo Sapiens
      <400> 446
agattacaac acacatacaa taagtgaatt ttatcaaaat acagcacatt tcttctacta
                                                                       60
tatccataaa aatcaattcc tatgtaaata gtactgaaaa tcaactaaaa tgagttaaaa
                                                                      120
tttacaaaga gttgttaaag ggtttcaatc aaaattatta aaactataca gtacaataac
                                                                      180
caattgataa catcttgaaa gaagtgcaat atttgagttc acatattttt aaaagtgctg
                                                                      240
cctacttact ctgactagca agaatggaaa gtgagtccaa ctcacttttg caaaaataat
                                                                      300
gttggttggt gttttaagct agtcttataa aagtcttaat taaaatcaag gttgataaac
                                                                      360
aaagcataac agattaaaaa ttcccaaatt gcatttctta gtaaataaaa atgaagtgca
                                                                      420
ataaccaaat attgctctaa tgaaaggttc cagactagcc tcaactaaac agttattggt
                                                                      480
cttctatggc actttttct ggtccaaata accatgcatt aatccttacc attacatgtt
                                                                      540
actcaaattt tatttgatta catagaacaa aaacaaataa aattaatggt ctggataaac
                                                                      600
aaaattaata aacctctatc atcaaatatt tgttacagta actaggaaca aagaaaggca
                                                                      660
gtttggtggg taaaacacta ttacactgat ceccatagga aaccecttta aagactetgg
                                                                      720
aagtgttgag ttcacattta atggtacctg tagaaacagn cctttatttg gacaccttta
                                                                      780
cccactggca ngccctaang gacccatccc tttgctctat aacttttcac aagcaattct
                                                                      840
ctaatcctqq qccaqtttnc aaaaqc
                                                                      866
      <210> 447
      <211> 789
      <212> DNA
      <213> Homo Sapiens
      <400> 447
gtcacgttgg aatgcaaatt gagcacatca ttgaaaacat tgttgctgtc accaaaggac
                                                                       60
tttcagaaaa attgccagag aagtgggaga gcgtgaaact cctgtttgtg aaaactgaga
                                                                      120
aatcggctgc acttcccatc ttttcctcgt ttgtcagcaa ttgggatgaa gccaccaaaa
                                                                      180
gatetttget taataagaag aaaaaagagg caaggaqaaa acgaaqaqaa aqaaattttg
                                                                      240
aaaaacaaaa ggagaggaag aagaagagc agcaggctag gaagactgca tcagttctta
                                                                      300
gtaaagatga tgtggcacct gaaagtggtg atactacagt gaagaaacct gaatcaaaga
aggaacagac cccagagcat gggaagaaaa aacgtggcag aggaaaagcc caagttaaag
                                                                      420
caacaaatga atccgaagac gaaatcccac agctggtacc aataggaaag aagactccag
                                                                      480
ctaatgaaaa agtagagatt caaaaacatq ccacaqqaaa qaaqtctcca qcaaaqagtc
                                                                      540
ctaatcccag cacacctcgt gggaagaaaa gaaaggcttt gccagcatct gagaccccaa
                                                                      600
aagctgcaga gtctgagacc ccagggaaaa gcccagagaa gaagccaaaa atcaaagaag
                                                                      660
agcagtgaag gaaaaaagtc cttcgctggg gaaaaaagat gccgaagaca gacttcaaaa
```

aagccagang ccaggttttc ccactcctag taaatctgtg agaaagcttt ccacacccc

720

780

aaaaaatgg	789
<210> 448	
<211> 820	
<212> DNA	
<213> Homo Sapiens	
<400> 448	
caggattact tatggaggtt ttattatttn tatttatttt tgagactgag tett	getetq 60
teateagget ggagtgeagt ggeteactge aaceteegee teccaggtte aage	aattot 120
cctgcctcag cctccctagt agctgggatt acaggtgtcc accaccatgc ccaa	
tttgtatttt tggtacagac agggtttcac catgttggcc aggatggtct cgate	
gacettgtga teegeetgee teggeeteee aaagtgetgg gattacagge gtgag	
gcccctggac tacttatgga ggttttaaaa aatcttttaa gtccaggcct gacg	
gaaggttaca aaggcggcca ggatctgagt atttccaaaa agctctggag gcag	
ggtttccttc cagttgaatc actgacttta ggtcgactgg ggtactttgg gttt	tttggg 480
ccattttttg ggggtgtggg aagcttttct cacagattta ctaggagtgg tgaas	aaactt 540
ggcctctggc ttttttggag tctgtctcgc atctttttc cccagcgaag gact	
cttcactgcc tcttctttga tttttggctt cttctcttgg gcttttccct gggg	tetcag 660
actotgcago tttttggggg tottcaanat gotggcaaaa goottttott ttot	
gagggggngc ctggggatta ggactetttt geetgggana ettetttet tgng	ggnang 780
tttttgaaac nntacttttt ccaatttage ctggaggcct	820
<210> 449	
<211> 936	
<212> DNA	
<213> Homo Sapiens	
<400> 449	
	attacc 60
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaaatat taatagtttg caggaagagc ttttacagtt gaaagctata cacc	aagaag 120
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaaatat taatagtttg caggaagagc ttttacagtt gaaagctata cacc	aagaag 120
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagc aaaaaaatat taatagtttg caggaagagc ttttacagtt gaaagctata cacci aggtgaaaga gttgatgtge cagattgaag catcagctaa ggaacatgaa gcag ataagttgaa cgagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa	aagaag 120 agataa 180 agaaca 240
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagc aaaaaaatat taatagttg caggaagagc tittacagtt gaaagctata cacc aggtgaaaga gitgatgigc cagattgaag catcagctaa ggaacatgaa gcag	aagaag 120 agataa 180 agaaca 240
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagc aaaaaaatat taatagtttg caggaagagc ttttacaggtt gaaagctata cacc. aggtgaaagag gttgattggc cagattgaag catcagctaa ggaacatgaa gcag. ataagttgaa cgagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa tccagaagaa atatgaatgt gagttaggaa atttaagggaa agccacctca aatg aagacaatca gatatgttct attetettgc aagaaaatac atttgtagga caag	aagaag 120 agataa 180 agaaca 240 caaacc 300 tagtaa 360
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagc aaaaaaatat taatagtttg caggaagagc ttttacagtt gaaagctata cacci aggtgaaaga gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcag ataagttgaa cgagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa tccagaagaa atatgaatgt gagttagaaa atttaaggaa agccacctca aatg aagacaatca gatatgttc attetettge aagaaaatac atttgtagaa caag atgaaaaagt caaacactta gaagatacct taaaagaact tgaatctcaa caca	aagaag 120 agataa 180 agaaca 240 caaacc 300 tagtaa 360 gtatct 420
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cago aaaaaaatat taatagtttg caggaagagg tittacagtt gaaagctata cacci aggtgaaaga gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcag, ataagttgaa cgagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa tccagaagaa atatgaatgt ggttagaaa atttaaggaa agccactca aatg aagacaatca gatatgttct attetettge aagaaaatca atttgtagaa caag atgaaaaagt caaacactta gaagatacct taaaaggaact tgaatctcaa caca; atgaaaaagg ggtaactta atgaataatc ttaagttaaa acttgaaatg gatg	aagaag 120 agataa 180 agataa 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaaatat taatagttg caggaagagc ttttacagtt gaaagctata caccaggtgaaagg gttgattgtg cagattgaag catcagctaa gaacatgaa gcag. ataagttgaa cgagctaaaa gagaacttag taaaacatga tgaggcaagt gaaa tccagaagaa atatgaatgg tagttgagaa atttaaggaa agccacctca aatg. aagacaatca gatatgttct attctcttgc aagaaaatac atttgaagac aga atgaaaaatg caaacactta gaagatacct taaaagaact tgaatctcaa caca taaaagatga ggtaacttat atgaataact ttaagttaaa acttgaaaag gatg atataaaagga tgagtttttt catgaacggg aagacttaga gttaaaata aatg	aagaag 120 agataa 180 agaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 aattat 540
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cago aaaaaaatat taatagtttg caggaaggag tittacagtt gaaagctata cacci aggtgaaagg gitgatgitge cagattgaag catcagctaa ggaacatgaa gcag, ataagttgaa cyagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa tccagaagaa atatgaatg gagttagaaa attaaggaa agcacctca aatg, aagacaatca gatatgitct atictictige aagaaaataa attigtagaa caag atgaaaaagt caaacactta gaagatacct taaaagaact tgaatctcaa caca taaaagatga ggtaacttat atgaataatc ttaagttaaa acttgaaatg gatg atataaagga tgagttitti catgaacgg aagacttaga gtttaaaatt aatg taactgctaa agaagaacag ggctgtgtaa tigaaaaatt gaaaatcga ctag	aagaag 120 agataa 180 agataa 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 aattat 540 caggtt 600
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaatat taatagtttg caggaagagg tittacagtt gaaagcttata cacci. aggtgaaaga gitgatgtgc cagattgag catcagctaa ggaacatgaa gcag. ataagttgaa cgagctaaaa gagaacattag taaaacaatg tgaggcaagt gaaa. tccagaagaa atatgaatgt gagtagaaa atttaaggaa agccacctca aatg aagacaatca gatatgttct attctcttgc aagaaaatac atttgtagaa caag atgaaaaagc caaacactta gaagatacct taaaaggaac tgaatccaa caca taaaagagga ggtaacttat atgaataatc taaatgtaaa acttgaaatg gatg atataaaagga tgagtttttt catgaacgg aagacttaga gtttaaaatt aaatg tacatgctaa agaagaacag ggcttgtgta ttgaaaata taaaacttaga ctag taaataaca gttttgctat actgtagaac agcataacag agaagtacag agtc	aagaag 120 agataa 180 agaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 aattat 540 caggtt 600 ttaagg 660
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagccaaaaaaatat taatagttg caggaagagc tttttacagtt gaaagctata cacccaggtgaaagag gttgattgtg cagattgaag catcagttag gaacatgaa gcagtaagttgaa caggctaaaaa gagaacttag taaaacaatg tgaggcaagt gaaatccagaagaa atcaagatgt gagttagaaa atttaaggaa agccacctca aatggaagaacaca gatagaaaagaca gagtatctag attgaaaaaaca ttgaaacaca cacataaaaagatga ggtaacttat atgaataatc taaagttaaa acttgaaagg agcaccttaa atgaatataa atgaaaaagatg aggtaacttat atgaataatc taaagttaaa acttgaaagg agcaccttaga gtttaaaaatt aatgaactagcaga agcaccaccaca agcacacacaaaaca gttttgcaaa acgaaacac agcataaacag agaagacaca ttgaaaataa acttgaaaga ttgaactaaa agcacaccaca aacacacaca aacacacaca aacacacaca aacacacaca aacacacaca aacacacaca aacacacaca aacacacaca aacacacaca acttgaaacacaca ttgaaacaccacaca aacacacaca accacacaca accacacacacacacacacacacacacacacacacacaca	aagaag 120 agataa 180 agaaca 240 caaacc 300 tagtaa 360 gtatct 420 catcaac 480 aattat 540 caggtt 600 ttaagg 660 aaaaag 720
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaaaatat taatagttg caggaagagg tittacagtt gaaagctata caccaggtgaaaga gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcagatagagtgaaaga gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcagatcaagtgaaa atatgaagaa atatgaagt gagtaacatga gaagacatta taccagaagaa atatgaagt gagtacatta gaagacaatca atttgtagaa caag atgaaaaagt caaacactta gaagatacat taaaaggaat tagatttat atgaataatc taaaaggaat tagatttat atgaataatc taatgttaaa acttgaaatg gatgatactaaaagga tgagtttttt catgaacagg aagacttagg gtttaaaaata taatgaataata gattttgctaa atgagaacaaca gutttgctaa ttgaaaaatt taaaaagaaca gttttgctaa tagaacacaca agaagtacag ggtcaacacacaca aaaagaaata tcagaaccata atgagacacatt tttgtcagat tcagaaaaatta catgaaataa cataaacaa atgagacatt tttgtcagat tcagaaaaatta catgaaattaa catgaaattaa catgaagattaa aacagagtgtga aaac	aagaag 120 aggataa 180 aggataa 240 caaacc 300 tgtatct 420 ctcaac 480 aattat 540 ctgggt 600 ttaagg 660 aaaaag 720
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaaatat taatagttg caggaagagc ttttacagtt gaaagctata caccaggaggaga gttgatgtgc cagattagaag atcagctaa ggaacatgaa gcagataagttgaa caggacaataagttgaa caggacaataagttgaa caggacaataa ggaaaattaa taatgaatgt gagtaagaaa attaaggaa attaaggaa attagaatgt gagtagaaaattaa attagaatg caagacaatca gatagtacat taaaagaacat taaaacaatta gatgatataaac taaaagaatga ggtacattat atgaataatc taaaggaa gctagtagaa ggtaactta catgaattaa aggacaataaaga tgatgatataaaga tgagttittt catgaacgga aagacttaga gtttaaaaat aatgataaaa gatgataaaaa ggttgataaaaaa ggttgaataacaa ggttgaaaaaaa ggttgaaaaaaa tcagaacaa attagaataa agtagaaaaaa tcagaactaa atgagacatt tttgtcagat tcaggaaaaaataa cattaaatgg taaaataaa ggtttaaaaga ggcagataacaa gaaagatacaa gaaaaaataa cagaactaa ggtcagaaaaga ggcagaaaaaaa gaaaaaaaa cagaacaa ggtcagaaaaaa ggtcagaaaaaa ggaagataaga gaaaaaataa cagaaacaa ggtcagaaaaaa ggtcagaaaaaaa aaaagaaaaa taagaacaaa ggtcagaaaaaa ggcagaaaaaaa caagaaaaaa caagaacaa aggcagaaaaaaa aaaagaaaca ggcagaaaaaaa ggcagaaaaaaa caagaaaaa caagaaaaaa caagaaaaa taaaattaaa ggtcagaaaaaaa ggcagagaaaaaaa caagaagaacaa ttaaatgga taagaaaaaa ggcagagaaaaaaaa caagaaaaaa taaaaattaaa aatgaaaataa aagaaaataa caagaacaa ggcagaaaaaaaa aaaaaaaaaa	aagaag 120 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 540 caggtt 600 taaagg 720 ctaccg 780 ggaaat 840
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cago aaaaaaatat taatagtttg caggaaggag titticaggtt gaaagctata cacci aggtgaaagg gitgatgitg caggattgaag catcagctaa ggaacatgaa gcag, ataagttgaa cyagctaaaa gagaacttag taaaacaatg tgaggcaagt gaaa, acaagaaa atatgaatg sagttagaaa attaaggaa agcacctca aatg, aagacaatca gatatgitct attcictige aagaaaataa attigtagaa caag atgaaaaagg caaacactta gaagatacct taaaagaact tgaatcicaa caca taaaaggatga ggtaacttat atgaataatc taaaggaa actigaaatg gatg atataaaagga tyagtittit catgaacgg aagacttaga gittaaaaatt aatg tactagctaa agaagaacag ggctgtgtaa tigaaaaata aaaatctgag ctag, taaataaaca gittigctat actgiagaac agcataacag agaagtacag agci aacaccatca aaaagaaata cacgaactaa atgagacatt titigtcagat toag gaaaaattaa cattaatgg tgaaatcaa ggcettaang gacagtgiga aaac ccaggaaaag caagaagcca tittaaanti nigagagnit acccagagaa titi ttcccaanen gaactgggg gaatctgctg ggaaaatag gcaagagtt cgaa	aagaag 120 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 540 caggtt 600 taaagg 720 ctaccg 780 ggaaat 840
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaaatat taatagttg caggaagagc ttttacagtt gaaagctata caccaggaggaga gttgatgtgc cagattagaag atcagctaa ggaacatgaa gcagataagttgaa caggacaataagttgaa caggacaataagttgaa caggacaataa ggaaaattaa taatgaatgt gagtaagaaa attaaggaa attaaggaa attagaatgt gagtagaaaattaa attagaatg caagacaatca gatagtacat taaaagaacat taaaacaatta gatgatataaac taaaagaatga ggtacattat atgaataatc taaaggaa gctagtagaa ggtaactta catgaattaa aggacaataaaga tgatgatataaaga tgagttittt catgaacgga aagacttaga gtttaaaaat aatgataaaa gatgataaaaa ggttgataaaaaa ggttgaataacaa ggttgaaaaaaa ggttgaaaaaaa tcagaacaa attagaataa agtagaaaaaa tcagaactaa atgagacatt tttgtcagat tcaggaaaaaataa cattaaatgg taaaataaa ggtttaaaaga ggcagataacaa gaaagatacaa gaaaaaataa cagaactaa ggtcagaaaaga ggcagaaaaaaa gaaaaaaaa cagaacaa ggtcagaaaaaa ggtcagaaaaaa ggaagataaga gaaaaaataa cagaaacaa ggtcagaaaaaa ggtcagaaaaaaa aaaagaaaaa taagaacaaa ggtcagaaaaaa ggcagaaaaaaa caagaaaaaa caagaacaa aggcagaaaaaaa aaaagaaaca ggcagaaaaaaa ggcagaaaaaaa caagaaaaa caagaaaaaa caagaaaaa taaaattaaa ggtcagaaaaaaa ggcagagaaaaaaa caagaagaacaa ttaaatgga taagaaaaaa ggcagagaaaaaaaa caagaaaaaa taaaaattaaa aatgaaaataa aagaaaataa caagaacaa ggcagaaaaaaaa aaaaaaaaaa	aagaag 120 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 540 caggtt 600 taaagg 720 ctaccg 780 ggaaat 840
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaaaaaa	aagaag 120 aggataa 180 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 600 ctaagg 660 aaaaag 720 ctaccg 780 ggaaat 840 tcatgg 900
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaatat taatagtttg caggaagagc tittacagtt gaaagctata gagtgaaagag gitgattgtgc cagattgaag catcagctaa ggaacatgaa gcagatagatg aagacatgaa gagaacatgaa gagaacatgaa gagaacatga gagaacatga aagacaadca gatagatgt daaacaatg tgaggcaagt gaaactcagaagaaaatca gatagatgt attcaggaa attaaggaa attgagaaga attcagtta daaagaacat daaacacata gaaagacaata taaaagaact taaaagaagag ggtaacttaa tgaaatact taaaagaact gagttgatataaagaa tgagttgttt catgaacgg aagacttaga gtttaaaat taaaactgatga ggtagttttt catgaacgg aagacttaga gtttaaaata taaaacatga ggttgataataact taaaagaacaa gttttgataa acgaaaacaa agaagaacaa ggcttgtgtaa tagaaaata taaaactgag cagaaaataa cattaggt gaaatcaa aggacataaca agaagtacaa agcaacaacaa caagaagaca tittaaaatt nagaactaga gacgaaaaataa cattaatggt tgaaatcaa ggtcttaaag gacgaaaacaacaacaacaacaacaacaacaacaacaaca	aagaag 120 aggataa 180 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 600 ctaagg 660 aaaaag 720 ctaccg 780 ggaaat 840 tcatgg 900
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaaaaatat taatagtttg caggaaggag tttttacagtt gaaagctata caccaaggtgaaagg gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcagatagaag catcagctaa ggaacatgaa gcagatagaaga atatggttgaa caggatgaaaa tataggatag gagaacatcag taaagcaatca gatatgttet attctcttgc aagaaaataa atttgtagaa catgaaagaacatgaagaaggaagaaggagagaagaga	aagaag 120 aggataa 180 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 600 ctaagg 660 aaaaag 720 ctaccg 780 ggaaat 840 tcatgg 900
aaaagaagga aacagttact caactccaaa atatcattga ggctaattct cagcaaaaaatat taatagtttg caggaagagc tittacagtt gaaagctata gagtgaaagag gitgattgtgc cagattgaag catcagctaa ggaacatgaa gcagatagatg aagacatgaa gagaacatgaa gagaacatgaa gagaacatga gagaacatga aagacaadca gatagatgt daaacaatg tgaggcaagt gaaactcagaagaaaatca gatagatgt attcaggaa attaaggaa attgagaaga attcagtta daaagaacat daaacacata gaaagacaata taaaagaact taaaagaagag ggtaacttaa tgaaatact taaaagaact gagttgatataaagaa tgagttgttt catgaacgg aagacttaga gtttaaaat taaaactgatga ggtagttttt catgaacgg aagacttaga gtttaaaata taaaacatga ggttgataataact taaaagaacaa gttttgataa acgaaaacaa agaagaacaa ggcttgtgtaa tagaaaata taaaactgag cagaaaataa cattaggt gaaatcaa aggacataaca agaagtacaa agcaacaacaa caagaagaca tittaaaatt nagaactaga gacgaaaaataa cattaatggt tgaaatcaa ggtcttaaag gacgaaaacaacaacaacaacaacaacaacaacaacaaca	aagaag 120 aggataa 180 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 600 ctaagg 660 aaaaag 720 ctaccg 780 ggaaat 840 tcatgg 900
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaaaaatat taatagtttg caggaaggag tttttacagtt gaaagctata caccaaggtgaaagg gttgatgtgc cagattgaag catcagctaa ggaacatgaa gcagatagaag catcagctaa ggaacatgaa gcagatagaaga atatggttgaa caggatgaaaa tataggatag gagaacatcag taaagcaatca gatatgttet attctcttgc aagaaaataa atttgtagaa catgaaagaacatgaagaaggaagaaggagagaagaga	aagaag 120 aggataa 180 aggaaca 240 caaacc 300 tagtaa 360 gtatct 420 ctcaac 480 caggtt 600 ctaagg 660 aaaaag 720 ctaccg 780 ggaaat 840 tcatgg 900
aaaagaagga aacagttact caactccaaa atatcattga ggctaattet cagcaaaaaaatat taatagtttg caggaagagga tittacagttg gaaacatgaa gcagatgaag caggatgaag cagatgaag cagaatgaag cagatgaag atcagctaa ggaacatgaa gcagataagtgaagaaa atcagatgaagaa attagaatgt gagaacattaa taaaagaactaa gatagttet attetettga aagaaaaataa attigtagaa cagaaaataa gaaaacaatga ggagaatataatac taaaagagag ggtaacttat atgaataatac taaaagaactga ggtacattat atgaataatac taaatgaatga ggtacattat atgaataatac taaaagaaga ggtagttett catgaacgg aagactaaga ggtagttett catgaacgg atgaactaaa ggtagtataaaacaacaacaa guttigtata actgaaacaa atgaaaataa ttgaaatga ggtagtaaaaacaacacaac	aagaag agataa 180 aggataa 240 caaacc 240 caaacc 420 ctcaac 480 caggtt totaag 720 ctacag 780 gaaata 840 tcatgg 900 936

180

agaatagttg ggcatttaaa taaaatttgc taaatgaatg aaaaatccaa aataaatcat

672

```
gaagccattt ataaatcaca ccaatcttgc ttqqqttaaa caataqaaaq taacactttt
                                                                       240
gaaagagaag gcaaacaggt gttagagggg caagaatgtg agctcgagga aaagacagct
                                                                      300
acgaactgtg tttttaacaa ctcattattt ggctactata tttcccaatc tattctaaca
                                                                      360
ctaacaagaa totgtotaat taattgtgac aacatotgca aaaccatagt tacotatttt
                                                                      420
ttcttccaac tcttttactg aagacagagg atcatttttt acagaaggtg attttgctaa
                                                                      480
ggaatcottt aatagtatca actotgotot cotatotogt aattottttt ontotagtag
                                                                       540
tggctttagg ttttcatgtt cctttataaa acatttttct ttttcattat ggatttcact
                                                                      600
tttgctacat gtttgagata cttctttcaa cttgaattaa aagaatctga ttttcaagcc
                                                                      660
ttggtttttc attagcattc ttcatttcta gaagatccag actgcanggn ctctttttct
                                                                      720
ggactggaat tottotaact ottttoottt aagaagaaco tttttottgg ntoataggoo
                                                                      780
tottcaatta aggacttaag gtottt
                                                                      806
      <210> 451 .
      <211> 909
      <212> DNA
      <213> Homo Sapiens
      <400> 451
ctgagetett ccagggeaag aaatatgacg ggeeagaagt ggatgtgtgg agtetggggg
                                                                       60
tcattttata cacactagte agtggeteac tteeetttga tgggeaaaac etaaaggaac
                                                                      120
tgagagagag agtattaaga gggaaataca gaattccctt ctacatgtct acagactgtg
                                                                      180
aaaacettet caaacgttte etggtgetaa atecaattaa aegeggeact etagageaaa
                                                                      240
tcatgaagga caggtggatc aatgcagggc atgaagaaga tgaactcaaa ccatttgttg
                                                                      300
aaccagagct agacatctca gaccaaaaaa gaatagatat tatggtggga atgggatatt
                                                                      360
cacaagaaga aattcaagaa totottagta agatgaaata cgatgaaatc acagctacat
                                                                      420
atttgttatt ggggagaaaa tottcagago tggatgotag tgattccagt totagcagca
                                                                      480
atettteaet tgetaaggtt aggeeegage agtgatetea acaacagtae tggeeagtet
                                                                      540
cctcaccaca aagtgcagag aagtgtttct tcaagccaaa agcaaagacg ctacagtgac
                                                                      600
catgetggae cagetattee ttetgttgtg gegtateeeg aaaaggagte agaecageae
                                                                      660
tgcagatagg tgaccctcaa agaagatggg aaattteett cenggaaate aaagtggcag
                                                                      720
tgctggttgg aaggaaangg gaattgcttc cagccaqgtc ccatgctttg ggnaatgcca
                                                                      780
ggtaatneet aataaggegg atatteetgg aaegeeagga aaageteeae tggneeetag
                                                                      840
tagtanenea geatetggtg ggaatgaene gaeegaaatt nettaaggtt tgeaqtqqaq
                                                                       900
agaacttcc
                                                                       909
      <210> 452
      <211> 672
      <212> DNA
      <213> Homo Sapiens
      <400> 452
actgaaaaaa agtgaanttt naattatntt qtnaatnnac tnaaaaaacc ncacncaagc
                                                                        60
aatgttcaca antntaaatt naaacctttt gcactaaaaa ancacaaaan ancaaacaca
                                                                       120
aaaccacagg cntgaactgn aaacctgtct taactatgaa ctggncttaa ggttaattct
                                                                       180
tanningocat toantattte inteettggn aactgtaatg tintageace ggatgatete
                                                                       240
cegnanaggt netagaanng acngnetgee agngnangga gatnetteen tatacaceae
                                                                       300
ttnanacnca taccgtcnan tttcanaccn acccagacgg nangcacatg gngatggggc
                                                                       360
cncacnccna ctntnanggn aacggaagta gggcaggngg cgcatnggtt gcacatcttt
                                                                      420
aatqtattgc attcqnaaaa aaaaggccag ntttcnatcc caggcgtgct ctngacctna
                                                                      480
gactttaatn ncatgattta naanatncag nacgntattg cctaaatntt attctataca
                                                                      540
tttccatcag tggttnagga aaacacttta aatgcaactn anttccacat cananncact
                                                                      600
```

<210> 453

ggaatgneee ee

gnggttacag ntttagctca ttgggcaatt tttngaagca attttttnng aaangctntt

```
<211> 834
      <212> DNA
      <213> Homo Sapiens
      <400> 453
aagaagccaa gaagtctgaa gaaccaagaa ttcggaagaa gccgggaccc aagcccggat
                                                                       60
ggaagaagaa gcttcgttgt gagagggagg agcttcccac catctacaag tgtccttacc
                                                                      120
agggetgeac ggccgtgtac cgaggegetg acggcatgaa gaagcacate aaggagcace
                                                                      180
acgaggaggt cogggagcgg coetgecccc accetggetg caacaaggtt ttcatgatcg
                                                                      240
accgctacct gcagcgccac gtgaagctca tccacacaga ggtgcggaac tatatctgtg
                                                                      300
acgaatgtgg acaaaccttc aagcagcgga agcaccttct cgtccaccaa atgcgacatt
                                                                      360
egggagecaa geetttgeag tgtgaggtet gtgggtteea qtgcaqqeaq eqqqeateec
                                                                      420
tcaagtacca catgaccaaa cacaaggetg agactgaget ggactttgee tgtgaccagt
                                                                      480
gtggccggcg gtttgagaag gcccacaacc tcaatgtaca catgtccatg gtgcacccgc
                                                                      540
tgacacagac ccaggacaag gccctgccct ggaggcggaa ccaccacctg ggccaccqaq
                                                                      600
cccctctgtg accacagacg gccaggcggt gaagcccgaa cccacctgag gacggcagtg
                                                                      660
aggatgagca cototagcag cotggactto goagtggotg tgtcaagcot caccottogt
                                                                      720
gtgcacccgc atgggagggt cggagggttg cttgccgncc ttggtgctgg angcgggctt
                                                                      780
ggtgtccggc tcaagtagcc ttctttgntc ttgggaccag tgggttattt tccc
                                                                      834
      <210> 454
      <211> 703
      <212> DNA
      <213> Homo Sapiens
      <400> 454
cccgtgtaaa taatttatta caagcataac atggagctct tgttgcacta aaaagtggat
                                                                       60
tacaaatctc ctcgactgct ttagtgggga aaggaatcaa ttatttatga actgtccggc
                                                                      120
cccaagtcac tcagcgtttg cgggaaaata aaccactggt cccagagcag aggaaggcta
                                                                      180
cttgageegg acaccaagec egeeteeage accaagggeg ggeageacec tecqaecete
                                                                      240
ccatgcgggt gcacacgaag ggtgaggctg acacagccac tgcggagtcc aggctgctan
                                                                      300
aggigeteat ceteactgee giecteaggi gggiteggge ticacegeet ggeegietgi
                                                                      360
ggtcacagag gggctcggtg gcccaggtgg tggttccgcc tccaggggca gggccttgtc
                                                                      420
ctgggtctgt gtcagcgggt gcaccatgga catgtgtaca ttgaggttgt gggccttctc
                                                                      480
aaaccgccgg ccacactggt cacaggcaaa gtccagctca gtctcagcct tgngtttqgt
                                                                      540
catgtggtac ttgagggatg cccgctgcct gcactggaac ccacagacct cacactgcaa
                                                                      600
aggettgget necgaatgte geatttgggg gaegaaaaag gtgetteege tgettgaaag
                                                                      660
gnttggccca attnggtaca agatatagtt ccccaccttt ggg
                                                                      703
      <210> 455
      <211> 825
      <212> DNA
      <213> Homo Sapiens
      <400> 455
atggcaatca ggaaaaggtg ccagaacccg aggctttgga ccttccagat gacttqaacc
                                                                       60
ttgacagtga agacaagaat ggtggtgagg acaccgacaa tgaagaagga gaagaagaga
                                                                      120
atcetttgga gataaaagaa aaaccagaag aagcaggtca tgaagctgag gaaagaggag
                                                                      180
agaccgagac cgaccagaac gaaagtcaga gtccacagga gcctgaggaa ggccccagtg
                                                                      240
aagatgacaa ggcagaaggg gaagaggaaa tggacacagg agctgatgac caagatggag
                                                                      300
atgetgetea geateetgaa gaacaetetg aggageagea geagtetgtg gaggaaaaag
                                                                      360
acaaggaagc cgatgaagaa ggtggagaga atggccctgc tgaccaaggt ttccagcccc
                                                                      420
aggaggaaga agaacgggag gactctgata cagaggagca ggtgccagag gctttggaga
                                                                      480
ggaaggagca tgcctcctgt gggcagactg gtgtggagaa catgcagaac acacaggcca
                                                                      540
```

tggagctggc tggggccgca cctgagaagg agcaggggaa agaggaacac ggaagtggag

ctgcagatgc aaaccaggca	gaaggccatg	aatcgaattt	cattgcccag	ttggccttcc	660
agaacacacc aggaaaaaca					720
gaacgttnca tgggtgatca	caattgaacg	tgtgcacaag	aagctganga	cttqtqqaat	780
ccggacaggc attgccaacc				5 55	825
<210> 456					
<211> 740					
<212> DNA					
<213> Homo Sapi	ens				
<400> 456					
acatcaacaa cagtggtata	tgttttaata	gttttcagaa	tataagctgc	atagcttttt	60
agaataaaaa atgatataa	ttcaggtaca	tgctttggga	cacttggtta	aacaaggaat	120
ctgtgtcttt gatgaccacc	tcaaaagggt	cgcagacttc	acagtgtaac	ttggaaacag	180
acaaggagat agatgattad	atcatgacat	actgcctaca	aaagaacatt	ctgacagaac	240
attaagtaga acagagcaca	cagtttcaag	tattcagcac	tgctttctgg	ccaagtaaaa	300
actgcctaaa gatcagttto	tttcgactgg	aaaaaataga	tggagetget	gagttctgga	360
cacagegttt ctttcccaga					420
tcactcttcc ccttgactgt					480
acaacaggga ccatggcact	gaatgaaata	aaggggcaat	caccttccca	tcattgcata	540
gtctcccgaa gcagcaagtg	tgaaagagga	tactgaaaag	ccacttcatt	tttacacage	600
ccaagggatc gtttttatng	atgacctggg	cacctataat	gnccagttgc	tttatgagaa	660
ccacacacac accacattct	tectaceetn	taagagaagg	taggttcctt	tcacaataag	720
gaaaaccccc ccttatactt	:				740
<210> 457					
<211> 726					
<212> DNA					
<213> Homo Sapi	ens				
<400> 457					
	ataattaaaa				
aaaatgtagt caactttatt					60
tcactagtta cagteteged	- thtosant	cragadarada	geagttagtt	agtcacagge	120
cagaactcct gtggggtctc	cutaaaatgo	taacacccag	gttaaaagac	ttggggcaag	180
ggtggtgctg gagctggcag	ggcccccacc	ccaagtetgg	gggaggtgee	tgeteeteta	240
ggagggcaca gggcccagg	caeggegeee	aggecttacg	gggcggcggc	tgctgcacag	300
tgccacatct tcagggccca					360
ttctccatcc tcctcctgc	ggeeaggget	gggagatggt	tecagggace	tcaactcctc	420
agcaaagtcc ggtgacaggc	greeegggga	ggtgctggtc	tgggggccga	ggtcttccac	480
aggggtgggc gacggggtgg	gcccagggga	aggggcctcg	gccagtcgct	ccaggggccc	540
cegegtgece eggeetttet	gggacetget	gaggaccatc	tgtgctcgga	gagegteetg	600
ttccaatgac ttcatcctgg	ctggccttca	caagegeaeg	cttctcggnc	ttcagggccc	660
cggacttcgg caaggggac	nggcacgett	cgggtgccgg	tggcttccgg	actttggacg	720
ccgcaa					726
<210> 458					
<211> 436					
<212> DNA					
<213> Homo Sap:	ene				
<2137 HOMO Sap.					
<400> 458					
cgcggcctct ccgccgggt	taccacctot	cacaacacaa	gacctctcct	~~~~	60
atgttgtccc ggttaagagi	agtttccacc	acttotactt	tagastatas	acatttacas	120
ataaaagaaa aaggcaagc	acttatocto	aacccaaccc	caaacaaca	acaccegeae	
actttacaag aacgacaaai	acttaatett	caaggag	tagatagas	aatygcattt	180 240

```
caagatattc aagccttacg atttcataga aacttgaaga aaatgactag ccctttggaa
                                                                      300
aaatatatct acataatggg aatacaagaa agaaatgaga aattgtttta tagaatactg
                                                                      360
caagatgaca ttgagagttt aatgccaatt gtatatacac cgacggttgg tcttgcctgc
                                                                      420
teccagtatg gacacatett tagaagacet aagggattat ttatttegat etcagacaga
                                                                      480
ggtcatgtta gatcaattgt ggataactgg ccagaaaatc atgttaaggc tgttgtagtg
                                                                      540
actgatggag agagaattet gggtettgga gatetgggtg tetatggaat gggaatteca
                                                                      600
gtaggaaaac tttgttgnat cagcttgtgc aggaatacgg cctgatagat gcctgccagt
                                                                      660
gtgtattgat gtgggaactg ataatatcgc actcttaaaa ganccatttt acatggctt
                                                                      720
gaccagaaac gagatcgcac ccacagttga tganctgatg gatgagttta tgaaaqcttt
                                                                      780
actgacagat atggccggaa cacctttatt cagttcgaag acnttggaaa tcataangcc
                                                                      840
ttcaggtctt tgagaaagtc cggggaaaaa
                                                                      870
      <210> 459
      <211> 761
      <212> DNA
      <213> Homo Sapiens
      <400> 459
aaatgtaaga tatttattaa ataaaaaggt tacactatga tttttataca ctgttgaaaa
                                                                        60
caatgacttt tatttactta aagccagcag tagttcccat tactctcata atgttatagt
                                                                      120
taaggettga tttagtteca gaaaataaat agggtaaatt tttaatattt ccctagetet
                                                                      180
gtctgctata gggaatttca gagtatgaag gtaagatgaa gcagatatat aagaacattt
                                                                      240
ttagataatg acaatttttc cttaaaattt ggtgaaaatt tagtttcttc tcaaaattct
                                                                      300
gtacttctat ccataaaagt aaatttctat tttagtagct ctgtaagaac taggccagag
                                                                      360
aagagtatta cccataatag taaatagcaa atactttqqc aagtctqaat tagagtacaa
                                                                      420
gtgaagacat tcacaaacac actttttaca tctcctggat gtggtacggg ctgtatgtta
                                                                      480
gaattaaagc atcacaacta totgattgta gggtgctggt gggcaatgca atcaatcaac
                                                                      540
acgtctaccc caacagatgt ggagacccat ggaaaaaaata catcaaccaa agtggtcagg
                                                                      600
gagaacaaaa ccccagaaaa cacccttaaa actgaagaca ttatctcttc ttggctgaaa
                                                                      660
aaaggggttc cctggagcac angaaaggtt ttatcaaggg aggcttctat tcnqtaatca
                                                                      720
caggaagget tgatgeanat teetggeeat teatacecea t
                                                                      761
      <210> 460
      <211> 876
      <212> DNA
      <213> Homo Sapiens
      <400> 460
ctgagetect gaagegeeet aaggagtaca etgtgegett caetttteca gaeeeeceae
                                                                        60
cactcagece tecagtgetg ggtetqeatq qtqtqacatt eggetaceag ggacagaaac
                                                                       120
cactetttaa gaacttggat tttggcatcg acatggatte aaggatttgc attgtgggcc
                                                                       180
ctaatggtgt ggggaagagt acgctactcc tgctgctgac tggcaagctg acaccgaccc
                                                                       240
atggggaaat gagaaagaac caccggctga aaattggctt cttcaaccag cagtatgcag
                                                                       300
agcagetgeg catggaggag acgeceactg agtacetgea geggggette aacetgeeet
                                                                       360
accaggatge cegeaagtge etgggeeget teggeetgga gagteaegee cacaccatee
                                                                       420
agatetgeaa actetetggt ggteagaagg egegagttgt gtttgetgag etggeetgte
                                                                       480
gggaacctga tgtcctcatc ttggacgagc caaccaataa cctggacata gagtctattg
                                                                       540
atgctctagg ggaggccatc aatgaataca agggtgctgt gatcgttgtc agccatgatg
                                                                       600
cccgactcat cacagaaacc aattgccagc ttgtgggtgg tggaggaaca gagtggtagc
                                                                       660
ccaatcgatg gtgactttga agactacaag ccgggaggtg ttggaagccc tgggtgaagt
                                                                       720
catgggcage enggeceega naagtgaage tttnetttee agaagtntee gagagaacat
                                                                       780
aattgggggg gcctaaaann cctctggggg cttcccttct tttgaanaat gctntggnct
                                                                       840
```

<210> 461

gcaantgact tggcaaccat ttaggcccct taaaqq

876

600

<211> 689					
<212> DNA					
<213> Homo Sapie	ens				
<400> 461					
gcaaacaaga tccatttagt	ggggaagagg	ggactattaa	aagctgctag	aaaactgaat	60
aaagcaaatc aagactgaga	acagttccaa	ctcccatcaa	tctccaaaca	gtgacaggtc	120
ggcagcaact cctttccttt	atttcttccc	cttgtaaagg	gaaattcaag	ttcagcagca	180
ttcctttcct gccccaagtc	ctcaaccaga	caagaggctg	caggcaccaa	atcttgggct	240
ggataatggc aaaggcctca	gaageteace	tccagctctg	agcttcaaca	gctgtttgta	300
ccagtgagtc agcattaaat	ccaccagaaa	agaacagcac	cacccaaaga	ctggggggca	360
gctgggcctg aagctgtagg	gtaaatcaga	ggcaggcttc	tgagtgatga	gagtcctgag	420
acaataggcc acataaactt					480
tgtttagggg gatgccaagg	ataaggccag	ctcagttata	tgaagagaag	cagaacaaac	540
aaagtctttc agagaaatgg					600
actccacctt catgtgcctg	aaatggttgc	caggtcagct	gcaggcccan	aggcagtctt	660
canaaggaag gggagaccac					689
<210> 462					
<211> 840					
<212> DNA					
<213> Homo Sapie	ens				
<400> 462					
aggageettt ggagtteeat	acce saccaca	attaggagg	aanaanaaan	at 200 200 to	
cggacgagga ggatgaggat	aatactagtg	aaaaaaaaa	taaattataa	gtagaagate	60
tgttacggct cggaggcacc	aacaccagcg	aagccgagaa	cgggcccccc	ctggaggaag	120
aggaagtgat agatggaggc	aagcaagatt	gaatggatga	ggetaettig	gatgagaatg	180
aagcatttat tcaaaatctt	aatttaaag	agtataga	cccccagcaa	ggtgaattgg	240
atgaaccagc tgaaaaagaa	aatteggega	agtatataaa	agetteetta	accgaagaag	300
ataaaaatac agcagaaagt	casaccacat	cacttaataa	addadacct	addatadata	360
cagaaccaca ttctgatgag	aataacaata	cagccaacaa	agtacagaaa	aagaatagge	420 480
acatctttga attttttgag	agacagactt	tattacttac	agcaaagaaa	gacaaacaga	540
atctggagta cagcaatgaa	tattettea	aaccccaacc	tcaggagge	anatotace	
acaaaaccct tgctcagaag	ctatatcaac	atcasatcas	cttattcaaa	gnatttaagt	600 660
atagtcaaaa gggagcctct	tetacetege	traaarreaa	ttatataata	agraagacga	
aggtgacagg atggcagcca	ttgattgttg	ttattaaggcaa	tagtgtcate	ggggaccact	720
ttcagnttgt agnaaactct	tagagaaccc	ttaataaaaa	gazgcccgc	Casassaga	780 840
	0999944000	reggedddaa	ggaanggena	caaaacagca	840
<210> 463					
<211> 784					
<212> DNA					
<213> Homo Sapie	ens				
<400> 463					
agatgtaagt agaattttaa	tctataattt	acattaataa	ctcatttcct	ttgtttttta	60
gttttttgag tggttttaat	cctcttctt	ttaaaatgtt	tettttett	gatgatactt	120
tttgcatctc tgttgtgtag	ccagtcatca	cgttcagcct	cccatctaag	ctgtttgaga	180
cttgcattat ctttgttagc	catggcattc	argccaatgt	tatcaaactt	ggatcccata	240
ttttcatcca atagatggcc	aaactcttca	gcagatacaa	ataggctgga	atcatttaag	300
tttcttttct tttttcttgg	cccttgaaat	gagccagcaa	agtcaaaatc	atctgtacct	360
tttctcttgc ttttcttagt	actgactttg	gagtggactt	caagttctgg	aacactctca	420
ctttcatcat ctaacacatc	catgaatgtt	cctccatctt	catcaacttc	agcaaattct	480
tcatcatcca tacttcctaa	agaaacttca	tcgtcatcca	ggttaccaag	ttcatcatca	540

ctaccttctg aatcttcatc taatgtgtta tccttagctc ctttttggtct ctttttcacg

120

tttccagcaa aaatccatat catcctttn gtcaatcagc tcttcaaatt ctttcatca catccccgtt tttggnttct cttttaanc aaac	ccacgtcctt	ctaatacttt	cttcaatctg	660 720 780 784
<210> 464 <211> 850 <212> DNA <213> Homo Sapiens				
<400> 464				
caggcatcgg ccaccggaac agcctggag	a gcatctcttc	categacegg	gagctgagcc	60
ctgagggccc aggcaaggag aaggagctg				120
ccacagaagc cgcaggtcgg ggtctgcag	ccctgaagct	ggactaccgc	gecetageea	180
ccgtgcccag cgctggcagc gtgcagagg	g taccgtctgg	agcagctgqa	gggaagatgg	240
ctgaatetee etgeteeeet agtggeeag	agccgccctc	cccgccttct	ccggatgage	300
tgcccgccaa tgtgaagcag gcctacagg	g ccttcgcggc	cgtgcccact	tctcacccgc	360
ctgaggatgc ccctgcccag ccccccacg	ctgggcctgc	agcctccccg	gagcagctqt	420
ccttccggga gcggcagaag tactttgag	c tggaggtgcg	cgtgccccag	gccgagggcc	480
cccctaagcg cgtgtccctg gtgggtgct	g acgacctgcg	gaagatgcag	gaggaggaag	540
ccagaaaact acagcagaag agagcgcag	a tgctgcggga	ggcggcagaa	gctggggccg	600
aagcgagget ngccctggac ggggagacg	c tgggcgagga	ggaacaggan	gatgagcagc	660
caccetggge cageeegage cecaettaa	g gcagaacccg	gcgtcccccc	ggccctggaa	720
gtggcgcccc ggtgcggacg gncaaaagc	gaacggggcc	ancaggaacc	ggttgccctt	780
canagtneeg gacceaecgg gaccecane	g tgccctggtc	ccttgcccaa	cttccgggcc	840
ctggaaggcc				850
<210> 465				
<211> 759				
<212> DNA				
<213> Homo Sapiens				
<400> 465				
aaaatgtagt caactttatt ctccttaaa	c cacaaaatag	agtctttggt	tgtacaaaca	60
teactagtta cagtetegee gaggteteg	g ctggggtggg	gcagttagtt	agtcacaggc	120
cagaactcct gtggggtctc tttaaaatg	c taacacccag	gttaaaagac	ttggggcaag	180
ggtggtgctg gagctggcag ggccccac	c ccaagtetgg	gggaggtgcc	tgeteeteta	240
ggagggcaca gggcccaggc cacggcgcc	aggeettaeg	gggcggcggc	tgctgcacag	300
tgccacatet teagggeeca eagegeegg ttntccatee teeteetgeg ggeeaggge	g rgagggeerg	taaaaaaaa	ccagagecae	360 420
agcaaagtcc ggtgacaggc gtcccgggg	e gggagatggt	tagagagaga	ggtgttggg	480
agggtggc gacgggtgg gccccgggg	a aggggccggcc	acceptogat	ggtetteeae	540
cogegtgece eggeetttet gggacetge	t gaggaccatc	tagactenga	aaagggggcce	600
tgttccaatg acttcatcct ggctgccct	t cacagngcac	actinicas	ttcaggggccc	660
ggagetttgg canggggaca aggcaacge	t teggatacce	gatagattee	ggacttttga	720
acgcgccaan ccggttcctt ggngggcgc		33 333	55	759
<210> 466				
<211> 1240				
<212> DNA				
<213> Homo Sapiens				
<400> 466				
gtggtagtgg tgccggagct ggaggcgga	g gcatgtttqq	tagtggcggt	qqaqqaqqqq	60

gcactggaag tacaggtcca gggtatagct tcccacacta tggatttcct acttatggtg

420

```
ggattacttt ccatcctgga actactaaat ctaatgctgg gatgaagcat ggaaccatgg
                                                                      180
acactgaatc taaaaaggac cctgaaggtt gtgacaaaag tgatgacaaa aacactgtaa
                                                                      240
acctetttgg gaaagttatt gaaaccacag agcaagatca ggagcccage gaggccaceg
                                                                      300
ttqqqaatgg tgaggtcact ctaacgtatg caacaggaac aaaagaagag agtqctqqaq
                                                                      360
ttcaggataa cctctttcta gagaaggcta tgcagcttgc aaagaggcat gccaatgccc
                                                                      420
ttttcgacta cgcggtgaca ggagacgtga agatgctgct ggccgtccag cgccatctca
                                                                      480
ctgctgtgca ggatgagaat ggggacagtg tcttacactt agcaatcatc caccttcatt
                                                                      540
ctcaacttgt gagggatcta ctagaagtca catctggttt gatttctgat gacattatca
                                                                      600
acatgagaaa tgatctgtac cagacgccct tgcacttggc agtgatcact aagcaggaag
                                                                      660
atgtggtgga ggatttgctg agggctgggg ccgacctgag ccttctggac cqcttqqqta
                                                                      720
actetgtttt geacetaget gecaaagaag gacatgataa agtteteagt atettactea
                                                                      780
agcacaaaaa ggcagcacta cttcttgacc accccaacgg ggacggtctg aatgccattc
                                                                      840
atctagccat gatgagcaat agcctgccat gtttgctgct gctggtggcc gctggggctg
                                                                      900
acgtcaatgc tcaggagcag aagtccgggc gcacagcact gcacctggct gtggagcacg
                                                                      960
acaacatctc attggcaggc tgcctgctcc tggagggtga tgcccatgtg gacagtacta
                                                                     1020
cctacqatgg aaccacaccc ctgcatatag cagctgggaa agggtccacc aggctggcag
                                                                     1080
ctcttcttaa agcagcagga gcagatcccc tggtgggaga ctttgagccc ttctatgacc
                                                                     1140
tggatgactc ttgggaaaat gcaggaaaag gattgaagga gttggnctgg aancacgcct
                                                                     1200
tttaganatg ggccnccaac tggcaggnat ttggcctatt
                                                                     1240
     <210> 467
      <211> 885
      <212> DNA
      <213> Homo Sapiens
      <400> 467
gtgccggagc tggaggcgga ggcatgtttg gtagtggcgg tggaggaggg ggcactggaa
                                                                       60
gtacaggtcc agggtatagc ttcccacact atggatttcc tacttatggt gggattactt
                                                                      120
tecateetgg aactactaaa tetaatgetg ggatgaagca tggaaccatg gacactgaat
                                                                      180
ctaaaaagga ccctgaaggt tgtgacaaaa gtgatgacaa aaacactgta aacctctttg
                                                                      240
ggaaagttat tgaaaccaca gagcaagatc aggagcccag cgaggccacc gttgggaatg
                                                                      300
gtgaggtcac tctaacgtat gcaacaggaa caaaagaaga gagtgctgga gttcaggata
                                                                      360
acctetttet agagaagget atgeagettg caaagaggea tgecaatgee ettttegaet
                                                                      420
acgcggtgac aggagacgtg aagatgctgc tggccgtcca gcgccatctc actgctgtgc
                                                                      480
aggatgagaa tggggacagt gtcttacact tagcaatcat ccaccttcat tctcaacttq
                                                                      540
tgagggatct actagaagtc acatctggtt tgatttctga tgacattatc aacatgagaa
                                                                      600
atgatetgta ecagaegeee ttgeaettgg eagtgateae taageaggaa gatgtggtgg
                                                                      660
aggatttget gagggetggg geeegacetg ageettetgg accegettgg gtaactetgg
                                                                      720
tttgcaccta gcttgcccaa agaaggacat gataaagttc tcaagtatct tacttaagen
                                                                      780
caaaaanggc agcactactt tnttgaccac ccccaacggg ggacggtctt gaatgccatt
                                                                      840
catttaagcc atgatgagcc ataagcctgg catggtttgc tgctg
                                                                      885
      <210> 468
      <211> 748
      <212> DNA
      <213> Homo Sapiens
      <400> 468
gcaaatcaga gaaataacca cattagaaaa agcaatatgc ctttttttt aaaatggcac
                                                                       60
atcaagtgac totcatttta aaatatotot tttottaaco ottaatttga atgcaaaatq
                                                                      120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cctttaatga caataggaac
                                                                      180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccaqca qcaqctgqca
                                                                      240
aagettagta ageaacetea teeccagatg cateegetea gecagtgttg tgattgetag
                                                                      300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt
```

tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt

```
ggatgcactt cagcttctgt cttgtggaaa cgcgtggaat tttagggctt tggtttacac
                                                                      480
ggtgtgggaa attgtcagca ggctaaattt tgccttctag aggtccttcc tgcccataat
                                                                      540
catggggcat tttgttgaga gttagcagtg aggcaccact ggtcagagac tcggtaaaqc
                                                                      600
tgagtttgcg gaaggatgtc tccacgccgc ttgtcgcaga cactgtcact ggcttcqqaq
                                                                      660
ctcgnctatt tgctgccttg tggaggcagg cgaaanaagc agcgagtggg ccctgaaaag
                                                                      720
gngggenttc actgggctgg aaggettg
                                                                      748
     <210> 469
      <211> 770
     <212> DNA
     <213> Homo Sapiens
      <400> 469
gcaaatcaga gaaataacca cattagaaaa agcaatatgc ctttttttt aaaatggcac
                                                                       60
atcaaqtqac tctcatttta aaatatctct tttcttaacc cttaatttga atgcaaaatq
                                                                      120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cctttaatga caataqqaac
                                                                      180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca
                                                                      240
aagcttagta agcaacctca tecceagatg cateegetea gecagtgttg tgattgetag
                                                                      300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt
                                                                      360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt
                                                                      420
ggatgcactt cagcttctgt cttgtggaca acgcagtgga attttagggc tttqqtttac
                                                                      480
acggtgtggg aaattgtcag caggctaaat tttgccttct agaggtcctt cctgcccata
                                                                      540
atcatggggc attttggtga gagntagcag tgaggcacca ctggtcagag acttcggtaa
                                                                      600
agctgagttt gegggaaagg atgtntteea eqeeqettnt eqeanacact ggeactgnet
                                                                      660
tgggageten getattttge ttgecettgt ggangeagge caaaanaage caacqaatqq
                                                                      720
ggccctgaaa aggngggcct tcanctgggc ttggaagctt gcctnggatc
                                                                      770
      <210> 470
      <211> 892
      <212> DNA
      <213> Homo Sapiens
      <400> 470
agagtgctgg agttcaggat aacctctttc tagagaaggc tatgcagctt gcaaaqaggc
                                                                       60
atgccaatgc ccttttcgac tacgcggtga caggagacgt gaagatgctg ctggccgtcc
                                                                      120
agegecatet cactgetgtg caggatgaga atggggacag tgtettacae ttagcaatca
                                                                      180
tocaccttca ttctcaactt gtgagggatc tactagaagt cacatctggt ttgatttctg
                                                                      240
atgacattat caacatgaga aatgatctgt accagacgcc cttgcacttg gcagtgatca
                                                                      300
ctaagcagga agatgtggtg gaggatttgc tgagggctgg ggccgacctg agccttctqq
                                                                      360
accgcttggg taactctgtt ttgcacctag ctgccaaaga aggacatgat aaagttctca
                                                                      420
gtatettaet caageacaaa aaggeageae taettettga eeaceecaae ggggaeggte
                                                                      480
tgaatgecat tcatctagec atgatgagea atageetgee atgtttgetg etgetggtgg
                                                                      540
ccgctggggc tgacgtcaat gctcaggagc agaagtccgg gcgcacagca ctgcacctqg
                                                                      600
ctgtggagca cgacaacatc tcattggcag gctgcctgct cctggagggt gatgcccatg
                                                                      660
tggacagtac tacctacgat ggaaccacac ccctgcatat agcagctggg aaagggtcca
                                                                      720
ccaggetgge agetettett aaageageag gageagatee eetggtggga gaetttgage
                                                                      780
ccttctatga cctggatgac tcttgggaaa atgcaggaaa aggattgaag gagttggnct
                                                                      840
ggaancacgc cttttagana tgggccncca actggcaggn atttggccta tt
                                                                      892
      <210> 471
      <211> 759
      <212> DNA
      <213> Homo Sapiens
```

<400> 471

```
gcaaatcaga gaaataacca cattagaaaa agcaatatgc ctttttttt aaaatgqcac
atcaagtgac totcatttta aaatatotot tttottaacc ottaatttqa atqcaaaatq
                                                                      120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cctttaatga caataggaac
                                                                      180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca
                                                                      240
aagcttagta agcaacctca tecceaqatq cateeqetca qecaqtqttq tgattqctaq
                                                                      300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt
                                                                      360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt
                                                                      420
ggatgcactt cagettetgt ettgtgqaca acqeaqtqqa attttaqqqe tttqqtttac
                                                                      480
acggtgtggg aaattgtcag caggctaaat tttgccttct agaggtcctt cctgcccata
                                                                      540
atcatggggc attttgttga gagttagcag tgaggcacca ctggtcagag actcggtaaa
                                                                      600
gctgagtttg cggaaggatg tctccacgcc gctgtccgca gacactgtca ctqnctcqqa
                                                                      660
gctcgtctat ttgctgcctt gtggaggcag gcgananagg caacgagtgg gccctgaaaa
                                                                      720
gnggtcttca ctgggctgga agcttgnctg gatcacttt
                                                                      759
      <210> 472
      <211> 852
      <212> DNA
      <213> Homo Sapiens
      <400> 472
gtggtagtgg tgccggagct ggaggcggag gcatgtttgg tagtggcggt ggaggagggg
                                                                       60
gcactggaag tacaggtcca gggtatagct tcccacacta tggatttcct acttatggtg
                                                                      120
ggattacttt ccatcctgga actactaaat ctaatqctqq qatqaaqcat qqaaccatqq
                                                                      180
acactgaatc taaaaaaggac cctgaaggtt gtgacaaaag tgatgacaaa aacactgtaa
                                                                      240
acctetttgg gaaagttatt gaaaccacag agcaagatca ggageccage gaggecaceg
                                                                      300
ttgggaatgg tgaggtcact ctaacgtatg caacaggaac aaaagaagag agtgctggag
                                                                      360
ttcaggataa cctctttcta gagaaggcta tgcagcttgc aaagaggcat gccaatgccc
                                                                      420
ttttcgacta cgcggtgaca ggagacqtga aqatqctqct qqccqtccaq cqccatctca
                                                                      480
ctgctgtgca ggatgagaat ggggacagtg tcttacactt aqcaatcatc caccttcatt
                                                                       540
ctcaacttgt gagggatcta ctagaagtca catctggttt gatttctgat gacattatca
                                                                       600
acatgagaaa tgatctgtac cagacgccct ttqcacttqq cagtqatcac taagcaggaa
                                                                       660
gatgtggtgg aggatttget gaagggetgg ggeeegaeet tgageettte tggaceeget
                                                                      720
tgggtaactc tgttttgcac cctaacttgc caaagaaggg cattgataaa ggtcttcaag
                                                                      780
tatettaett cageccaaaa anggeageae taettntttg accaecceaa egggggaegg
                                                                      840
gcttgaatgc ca
                                                                       852
      <210> 473
      <211> 804
      <212> DNA
      <213> Homo Sapiens
      <400> 473
gcaaatcaga gaaataacca cattagaaaa agcaatatgc ctttttttt aaaatggcac
                                                                       60
atcaagtgac tctcatttta aaatatctct tttcttaacc cttaatttga atgcaaaatg
                                                                       120
atgctgtggt cagaaggaat gccaggtggc gaccgtgata cctttaatga caataggaac
                                                                       180
gtagcagagg gacaacagca atgacaacag aaagcagctg tgatccagca gcagctggca
                                                                       240
aagcttagta agcaacctca teeccagatg cateegetea gecagtgttg tgattgetag
                                                                       300
atactatctg taagtgaacc aaactaaaat tcatttatga accaagaaag gaagccaagt
                                                                       360
tgaaaaggtc tcgagttaaa tcgagaatga ttcaggcggg ccggctctct gagcaccttt
                                                                      420
ggatgcactt cagcttctgt cttgtggaca acgcagtgga attttagggc tttggtttac
                                                                      480
acggtgtggg aaattgtcag caggctaaat tttqccttct aqaqqtcctt ccttqcccat
                                                                       540
aatcatgggg cattttgttg agagttagca gtgaggcacc acttggtcaa gagactcggt
                                                                       600
naagetgagt tttgeggaag gatgteteea egeeegetgt egeagaeact gteaetgtet
                                                                       660
teggaacteg netatttget gnettgtgga ageaggenaa nanaageane qaantgggge
                                                                       720
```

780

cctgaaaagn gggtcttcac ttggnctgga aggcttgccc tgggatcnct ttnaatgggc

360

	804
<210> 474	
<211> 819	
<212> DNA	
<213> Homo Sapiens	
<400> 474	
ggctgggctg cgcttgggtc cgtcgctgct tcggtgtccc tgtcgggctt cccagcagcg	
gcctagcggg aaaagtaaaa gatgtctgaa tatattcggg taaccgaaga tgagaacgat	60
gageceattg aaataceate ggaagaegat gggaeggtge tgeteteeae ggttacagee	120
cagtttccag gggcgtgtgg gcttcgctac aggaatccag tgtctcagtg tatgagaggt	180
gtccggctgg tagaaggaat tetgcatgcc ccagatgctg gctgggggaaa tetggtgtat	240
gttgtcaact atccaaaaga taacaaaaga aaaatggatg agacagatgc ttcatcagca	300
gtgaaagtga aaagagcagt ccagaaaaca tccgatttaa tagtgttggg tctcccatgg	360
aaaacaaccg aacaggacct gaaagagtat tttagtacct ttggagaagt tcttatggtg	420
caggicaaga aagatettaa gactggicat teaaaggggi tiggettigt tegititacg	480
gaatatgaaa cacaagtgaa agtaatgtca cagcgacata tgatagatgg acgatggtgt	540
gactgcaaac ttcctaattc taagcaaagc caagatgagc ctttgagaag cagaaaagtg	600
tttgtggggc gctgtcagag gacatgactg aggatgaagc tgcgggagtt cttctttca	660
gtanogggga tgtgatggat ggtottcatn cocaagocat toagggoott tggctttggt	720
catttgcaga tgaatcagat gcgccagtct ctttgtgga	780
g-aga ogaacoagac gogocagcoc coccgcgga	819
<210> 475	
<211> 721	
<212> DNA	
<213> Homo Sapiens	
<400> 475	
<400> 475 atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagaattcca	
atttaaatca gttttattta agaatttoca acaatgacaa ctcttataaa aaqcatccaa	60
atttaaatca gtittattta agaatttoca acaatgacaa ctottataaa aagcatocaa gcacaggaca cagaactgca gcaaacagca ttottatggg tagotaacag acattacgac	120
atttaaatca gttttattta agaatttoca acaatgacaa etettataaa aagcatecaa gcacaggaca espaactgea gcaaacagca ttettatggg tagctaacag acattagaac ttecaecett etttgagaca ectgagetca etggtgaact etgcttcaag tectectecc	120 180
atttaaatca gttttattta agaatttoca acaatgacaa etettataaa aagcatecaa geacaggaca eagaactgca geaaacagca ttettatggg tagetaacag acattagaac ttecacectt etttgagaca ectgagetca etggtgaaac etgetteaag teeteetgea aagcacacca eagetcagt ceatgttete ageceatcag etteagttac eagtageacaca eaagcacacca eaagetcagt	120 180 240
atttaaatca gttttattta agaatttoca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagga ttcttatggg tagctaacag acattagaac ttccaccott ctttgagaca cctgagctca ctggtgaact ctgcttcaag tcctcctgca aagcacaca caagctcagt ccatgttct agcacacaca tttacaagaa gagaacacac accatacagc attcacagca gttgacaaaa	120 180 240 300
atttaaatca gttttattta agaatttoca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagctaacag acattagaac ttccaaccctt ctttgagaca cctgagctca ctggtgaact ctgcttcaag tcccctcgca aagcacacca caagctcagt ccatgttct agcccatcag cttcagttca cattgccaca cttacatatc agctacagaa aggaacaca accatacagc attacaagca gttgacaaag ggggaggggg agtacaagta tcatttcact taacacattc atctaatctg gcttatctaa	120 180 240 300 360
atttaaatca gttttattta agaatttoca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagctaacag acattagaac ttccaccctt ctttgagaca cctgagctca ctggtgaact ctgcttcaag tcctcctgca aagcacacca caagctcagt ccatgttctc agcccatcag cttcagttca ctatgccaca cttacatatc agtaacagaa gagaacacac accatacagc attcacagca gttgacaaag gggtaggggg agtacaagta tcatttcact taacacattc actaatgtg ggttatctaa gaacaaaaac tcacttaaaag tcttccaac acatactgqat ctcctttgaa tcaaagaa	120 180 240 300 360 420
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttataggg tagctaacag acattaggaac ttcccaagcac cagttcaag cctccatgtca aagcacacca caagctcagt ccatgttctc agccatcag cttcagttca cattgcacac cttacattca cagtacagaa gagaacacac accatcaagc attcacagca gttgacaaag gggtaggggg agtacaagta tcatttcact taacacactt atctaattgtg ggttatctaa gaacaaaacac cacttaaaa gtccttcaaa tgccacaaaacac accacaagat tattgctaca tatttgctat cattgctcactt ctcacaaag cacacagaat	120 180 240 300 360 420 480
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagctaacag acattagaac ttccaacctc ctttagagaca ctcaggactca ctggtqaact ctgcttcaag tcctcctgca aagcacacca caagctcagt ccatgttctc agcccatcag cttcagttcc acttgcacaca gtggacaggg agtacaagta tcatttcact tacacacacac attcaacga gttgacaaag ggggtagggg agtacaagta tcatttcact tacacacatc atctaatgtg ggttatctaa gaacaaaaaac tcacttaaaa gtcttccaac agatgtggat gtcctttgaa tgcaaaaaca attcgtacat tatttgctat cattgctcac tgcacactct ctcaccaaac ccacagtctctctcacacac ctctcacacac ctctcacacac ctctcacacac ctctcacacac	120 180 240 300 360 420 480 540
atttaaatca gttitattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttataggg tagctaacag cacttagaaca ttccacacca aagcacacaca caagctcagt ccatgttctc agccatcag cttcaagtca cattgcacaca cattacacaga attcaaagaa gagaacacaca cacacacaca atcacacaga attcacagca gttgacaaag gggtaagaggg agtacaagta tcatttcact taacacatt atcattaga ggctacaaaaaca tcacttaaaa gtcttcaaa agactgtggta ttcattagat gcaaaaaaac attcgtacaat tattgctat cattgctca tgagagacaca tattgctaa tgagagacaca tattgctaa tgagagacaca tattgctaa cattgctaacat tattgctat cattgctacacat caccagagatt gagagacaca tcactgccaca taaaaaaa tcacttatagc ttcaccacaag caccaggatt ggcttctcct tttctgccac atactagct ttcaccaca gccacaca taattcgcacgc gccaccaca taaatccac	120 180 240 300 360 420 480 540
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagctaacag cacttaggaca ttccaagcacaccacac	120 180 240 300 360 420 480 540 600
atttaaatca gttitattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttataggg tagctaacag cacttagaaca ttccacacca aagcacacaca caagctcagt ccatgttctc agccatcag cttcaagtca cattgcacaca cattacacaga attcaaagaa gagaacacaca cacacacaca atcacacaga attcacagca gttgacaaag gggtaagaggg agtacaagta tcatttcact taacacatt atcattaga ggctacaaaaaca tcacttaaaa gtcttcaaa agactgtggta ttcattagat gcaaaaaaac attcgtacaat tattgctat cattgctca tgagagacaca tattgctaa tgagagacaca tattgctaa tgagagacaca tattgctaa cattgctaacat tattgctat cattgctacacat caccagagatt gagagacaca tcactgccaca taaaaaaa tcacttatagc ttcaccacaag caccaggatt ggcttctcct tttctgccac atactagct ttcaccaca gccacaca taattcgcacgc gccaccaca taaatccac	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatagga tagctacaagaac tctccacagcac cagaactgca gcaaacagca ttcttatagga cagtacacacaca caagctcagt ccatgttctca agccatcaag cttcaagtcc attcaacagca attcacagca gggtaacagaa gagaacacac accatcacagc attcaagtcag gttactcaa gacaaaaaa tcacttaaaa gtcttccaac agattgggat gtcactaaa gacaaaaac tcacttaaaa gtcttccaac agattgggat gtcacaaaga cattcagcag gttactcaa tattggtcat cattggtcatc tgacacact ctcaccaaag ccaacaggatt gagaacaca tctctgcaag ttaaaaaata tccattatgc accaccaagt ctctgcacgc gctctctcct ttctcgcca tactacagcc ttcatcatca caaaggcctt gagtaacaga acttcctgga aattaagagt ancggataaa aatgggacac ccaccggtaa a	120 180 240 300 360 420 480 540 600
atthaaatca gttitattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagactgca gcaaaagca ttcttatagga tagctaacaag cacttagaaca ctctacagca tagctaacaag cacttagaaca cagctacatca aggcacacaca caagctcagt catgttctca agccatcag cttacattca agtacagaag agaaacacaca cactacacaca attcacagca gttgacaaggggga agtacaagta tcatttcact taacacatt tacacagca ttcacatcaagaaca tcacttaaaa gtcttcaaa gastytgaca gttgacaaaaaca tcacttaaaa gtcttcacacacaga attcacacacaca attcatcacacacacacacacaca	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacagagaca gcagaactgca gcaaacagca ttcttatatggg tactacaaga cattagaaca tcccacagacacacaca caagctcagt coatgttctc agccactcag cttcaagtca cttcacagca aagcacacaca caagctcagt ccatgttctc agccactcag cttcaagtca cttgacaaga gggtagagggg agtacaagta tcatttcact tacacacaca cacatacaga gggtaggggg agtacaagta tcatttcact tacacacatc atctaatag gtattccaa gaacaaaaca tcacttaaaa gtcttccaaa agattggat gtattctaa tttgctaat tatttgctat cattgctctc tgcacactct ctcacaaga cacacaggatt gaagacaca tctcgccaag ttaaaaaata tccattatag acacaccac tccacacag cacacaggatt cattcgccaca tctcdccct tttctcgcca aacacagctt tcattgctac cacacagact tcacacacacacacacacacacacacacacacacac	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagtacaaga acattagaac ttctcaagccaccacacacacacacacacacacacacaca	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacagagaca gcagaactgca gcaaacagca ttcttatatggg tactacaaga cattagaaca tcccacagacacacaca caagctcagt coatgttctc agccactcag cttcaagtca cttcacagca aagcacacaca caagctcagt ccatgttctc agccactcag cttcaagtca cttgacaaga gggtagagggg agtacaagta tcatttcact tacacacaca cacatacaga gggtaggggg agtacaagta tcatttcact tacacacatc atctaatag gtattccaa gaacaaaaca tcacttaaaa gtcttccaaa agattggat gtattctaa tttgctaat tatttgctat cattgctctc tgcacactct ctcacaaga cacacaggatt gaagacaca tctcgccaag ttaaaaaata tccattatag acacaccac tccacacag cacacaggatt cattcgccaca tctcdccct tttctcgcca aacacagctt tcattgctac cacacagact tcacacacacacacacacacacacacacacacacac	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca cagaactgca gcaaacagca ttcttatggg tagtacaaga acattagaac ttctcaagccaccacacacacacacacacacacacacaca	120 180 240 300 360 420 480 540 600 720
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca gcagaacgga ttcttataggg tagtaacaag cattagaaca ttctcaagcac tctctaagtac aagcacacaca caagctcagt catgttctca agcacacaca caagctcagt catgttctca agcacacaca catcacaga attcaaggggtagggggg agtacaagta tcatttcact taacacat tactacaga attcaatggggtagggggg agtacaagta tcatttcact taacacat gtctacataggactacgggtagacacaca cactacacacacacacacacacacacacacac	120 180 240 300 360 420 480 540 600 721
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacagagaca cagaactgca gcaaacagca ttcttatatggg ttccaagtcacaccacac	120 180 240 300 360 420 480 540 660 720 721
atttaaatca gttttattta agaatttcca acaatgacaa ctcttataaa aagcatccaa gcacaggaca gcagaacgga ttcttataggg tagtaacaag cattagaaca ttctcaagcac tctctaagtac aagcacacaca caagctcagt catgttctca agcacacaca caagctcagt catgttctca agcacacaca catcacaga attcaaggggtagggggg agtacaagta tcatttcact taacacat tactacaga attcaatggggtagggggg agtacaagta tcatttcact taacacat gtctacataggactacgggtagacacaca cactacacacacacacacacacacacacacac	120 180 240 300 360 420 480 540 600 721

nttnentate agtaccagaa gagacenene ncentneage ntteneagea gtngneaaag

gggtaggggn agtccangta tcatttnant taccacattc atctaagggg ggttatctaa

nttegnecat nattggetat ca	giicccciigaa	ngcaaaaane	420 442
<210> 477			
<211> 878			
<212> DNA			
<213> Homo Sapiens			
<400> 477			
ggtggctggg ctgcgcttgg gtccgtcgct gcttcggtgt	contatogga	cttcccacca	60
gcggcctagc gggaaaagta aaagatgtct gaatatatto			120
gatgagecca ttgaaatacc ateggaagac gatgggaegg			180
gcccagtttc caggggcgtg tgggcttcgc tacaggaatc	caqtqtctca	gtgtatgaga	240
ggtgtccggc tggtagaagg aattctgcat gccccagatg			300
tatgttgtca actatccaaa agataacaaa agaaaaatgg			360
gcagtgaaag tgaaaagagc agtccagaaa acatccgatt			420
tggaaaacaa ccgaacagga cctgaaagag tattttagta			480
gtgcaggtca agaaagatct taagactggt cattcaaag	ggtttggctt	tgttcgtttt	540
acggaatatg aaacacaagt gaaagtaatg tcacagcga	atatgataga	tggacgatgg	600
tgtgactgca aacttcctaa ttctaagcaa agccaagatg	agcetttgag	aagcagaaaa	660
gtgtttgtgg ggcgctgtca gaggacatga ctgaggatga	agctgcggga	gttcttcttt	720
agtaccgggg atgtgatgga tgtctttatt ccccaagcc	nttcaggggc	ttttggcttt	780
ggtacatttg ccagatgatc agaatgccca gtctcttttg	tggaaaagga	ctttgatcat	840
ttaaagggaa tcagcggttc attatattcc aatggccc			878
<210> 478			
<211> 768			
<212> DNA			
<213> Homo Sapiens			
<213> Homo Sapiens <400> 478			
<400> 478	: ttttagaatg	aatgcattta	60
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt	ttttagaatg	aatgcattta acttttaaac	60 120
<400> 478	tagtttaagt	acttttaaac	
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaa. ttcaaaaatct tcttagggta aaataaatac ccgtatctal ataaaaggcc actcaacatt gaaagccttc tatgaccag	tagtttaagt gcagtaccat aactgaaatt	acttttaaac aaacatgtta tacacaagtg	120
<4400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaa: ttcaaaatct tcttagggta aaataaatac ccgtatcta: ataaaaaggcc actcaacatt gaaagccttc tatgaccagt taaagaaggg attaaaccat gccgttgaca agttaactt;	tagtttaagt gcagtaccat actgaaatt cccctgggct	acttttaaac aaacatgtta tacacaagtg ccttgaaggc	120 180
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaa. ttcaaaatct tcttagggt aaataaatac ccgtatctai ataaaaggcc actcaacatt gaaagccttc tatgaccag taaagaaggg attaaaccat gccgttgaca agttaactt ttgtcagttt agtctttgga ggtcccgag taccatttt	tagtttaagt geagtaceat acctgaaatt ceeetggget agtgttacea	acttttaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct	120 180 240 300 360
<4400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaa ttcaaaatct tcttagggta aaataaatac ccgttactca ataaaaggcc actcaacatt gaaagccttc tatgaccagi taaagaaggg attaaaccat gccgttgaca agttaactt: ttgtcagttt agtctttgga ggtccccgag taccatttt gctgagtaat agtgcaagtg cattttaggt gcggtcacci	tagtttaagt gcagtaccat actgaaatt cccctggget agtgttacca agacttattc	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat	120 180 240 300 360 420
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatigattgaccaa atagatttta aaaaacaaat ctttgccaaattcaaaattct tcttaagatct tatgaccagt aaataaatac cogtatctatataaaaggcc actcaacatt gaaagccttc tatgaccagt taaagaaggg attaaaccat gccgttgaca agttaactttggcaggtataataggctgcagg taccattttggctgagtaat agtgcaagtg agttcaccttg gccgagtaat agtgcaagtg cattttaggt gcggtcaccttcaaaagaa aaaaaaaat tttcacttg gccaagca	tagtttaagt gcagtaccat actgaaatt cccctgggct agtgttacca gacttattc	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc	120 180 240 300 360 420 480
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagattttt aaaaacaaat ctttgccaaattcaaatact tcttagggta aaataaatac cogtaatctataaaaagaggc actcaacatt gaaagccttc tatgaccagttaaagaaggg attaaaccat gccgttgaca agttaacttttgtcagttt agtctttgga ggtcccqag taccattttgctggttt agtctttgga ggtcccqag taccattttggctgagtaat agtgcaagtg catttaagt gcggtcaccttcaaaagaa aaaaaaaaat tttcactttg gccaatgcattgggtatcag gtgtcaatgc atgacaggg atgaatcag	tagtttaagt geagtaeeat accetggaatt cecetggget agtgttaeea agaettatte gaacaaatae ttgaettgag	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaactagat caattaagtc acaacttttc	120 180 240 300 360 420 480 540
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagatttta aaaacaaat ctttgccaaattcaaaatct tcttagggt aaaataaatac cggtatctaataaaagggc actcaacatt gaaagccttc tatgaccagtaaagaaggg attaaaccat gccgttgaca agttaacttttgccagtt agtctttgga ggtccccgag taccattttgctgcgagtaat agtgcaaggg catttaaggt gcggtcaccattcaaaagaa aaaaaaaaat tttcactttg gccaatgcaatg	a tagtttaagt gcagtaccat acceptgget accettggget acguttatca agactatca agaacaaatac ttgacttgag actttatgaa	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct	120 180 240 300 360 420 480 540
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagatttta taaaaacaaat ctttgccaaattcaaaattct tctaaaattc tcttgccaaattcaaaaaggcc actcaacatt gaaagccttc tatgaccagttaaagaaggg attaaaccat gcogttgaca agttaacttttgtcagttt agtctttgga ggtccccgag taccattttgctgagtaat agtgcaagtg cattttaggt gcggtcaccttcaaaagaaa aaaaaaaaat tttcacttg gccaatgcactgggtatcag gtgtcaatgc atgacaggt atgaatccaaaaatggtt atttgaggc aaaataacact ctgccaaga caaaagggg aataaactg tagaatgc caaaaagggg aataaactg caaaaagggt aaaaaaggg caaaaaagggt aataaactg caaaaaaggtg	a tagtttaagt gaagtaccat acactgaaatt cccctgggct aggtttacca gaactattc gaacaatac ttgacttgag actttatgaa ttgaat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagattttt aaaaacaaat ctttgccaaattcaaatact tcttagggta aaataaatac cogtactaa ataaaagaggc actcaacatt gaaagccttc tatgaccagttaaagaaggg attaaaccat gccgttgaca agttaactt ttgtcagttt agtctttgga ggtcccgag tacaatttggctgagtaat agtgcaagtg cattttaggt gcggtcaccttcaaaagaa aaaaaaaatt tttacacttg gccaatgcattgggtatcag gtgtcaatgc atgacaggg agtgcaatgcataaataagttt atttgaagca aaataaacta ctgccaagaaaaaagggc aaaaaagggg aattactgc gcggcgcc tgnggatgcc gtgatgacca attcttgaaiggagcggcc tgnggatgcc gtgatgacca attcttgaaiggatgacca attcttgaaiggacca attcttgaaiggatgacca attcttgaaiggatgacca attcttgaaigacca attcttgaaiggatgacca attcttgaaigacca attcttgaaiggacca attcttgaaigacca attcttgaaigacca attcttgaaigacca attcttgaaigacca attcttgaaigaccaaaacaaaaacaaaacaaaacaaaac	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagatttta taaaaacaaat ctttgccaaattcaaaattct tctaaaattc tcttgccaaattcaaaaaggcc actcaacatt gaaagccttc tatgaccagttaaagaaggg attaaaccat gcogttgaca agttaacttttgtcagttt agtctttgga ggtccccgag taccattttgctgagtaat agtgcaagtg cattttaggt gcggtcaccttcaaaagaaa aaaaaaaaat tttcacttg gccaatgcactgggtatcag gtgtcaatgc atgacaggt atgaatccaaaaatggtt atttgaggc aaaataacact ctgccaaga caaaagggg aataaactg tagaatgc caaaaagggg aataaactg caaaaagggt aaaaaaggg caaaaaagggt aataaactg caaaaaaggtg	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600
<400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaattgattgaccaa atagattttt aaaaacaaat ctttgccaaattcaaatact tcttagggta aaataaatac cogtactaa ataaaagaggc actcaacatt gaaagccttc tatgaccagttaaagaaggg attaaaccat gccgttgaca agttaactt ttgtcagttt agtctttgga ggtcccgag tacaatttggctgagtaat agtgcaagtg cattttaggt gcggtcaccttcaaaagaa aaaaaaaatt tttacacttg gccaatgcattgggtatcag gtgtcaatgc atgacaggg agtgcaatgcataaataagttt atttgaagca aaataaacta ctgccaagaaaaaagggc aaaaaagggg aattactgc gcggcgcc tgnggatgcc gtgatgacca attcttgaaiggagcggcc tgnggatgcc gtgatgacca attcttgaaiggatgacca attcttgaaiggacca attcttgaaiggatgacca attcttgaaiggatgacca attcttgaaigacca attcttgaaiggatgacca attcttgaaigacca attcttgaaiggacca attcttgaaigacca attcttgaaigacca attcttgaaigacca attcttgaaigacca attcttgaaigaccaaaacaaaaacaaaacaaaacaaaac	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatotggt tcaaaaaaatt gattgaccaa atagatttta taaaacaaat ctttgccaaa ttcaaaatet tottaaggta aaataaatac cottgccaaa taaaaggcc actcaacaatt gaaagccttc tatgaccag taaagaaggg attaaaccaat gccgttgaca agttaactt tgtcagttt agtotttgga ggtccccgag taccatttt gctgagtaat agtgcaagtg cattttaggt gcggtcacc ttcaaaagaa aaaaaaaaat tttcacttg gccaatgca; tgggtatcag gtgtcaatga atgacaggtg atgaatcca; aaataagttt attgaagga aaataaacta ctgccaagc caaaagggt aaaaaaggg aattaactgc tatgaatcci gacgccggcc tgnggatgcc gtgatgacca attottgaa; ttcctatgg cagaaatatt tacnggccta ctttcaatg; <210> 479 <211> 815</pre>	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaaa ttcaaaatct tcttagggta aaataaatac ccgtaatcaa ataaagaaggg attaaaccat gcaagccttc tatgaccag taaagaaggg attaaaccat gccgttgaca agttaactt ttgtcagttt agtctttgga ggtcccqag taccattti gctgagtaat agtgcaagtg cattttaggt gcggtcacc ttcaaaagaa aaaaaaaat tttcactttg gcgtaatcaa tgggtatcag gtgtcaatgc atgacaggg atgaatcaa aaataagttt atttgaagca aaataacaca ctgccaagca caaaagggt aaaaaaaggg aaataaacta ctgccaagca caaaagggt aaaaaaggg gagtaacca tatcttgaa tttcctatgg cagaaatatt tacnggccta cttcaatgg <210> 479 <211> 815 <212> DNA</pre>	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatotggt tcaaaaaaatt gattgaccaa atagatttta taaaacaaat ctttgccaaa ttcaaaatet tottaaggta aaataaatac cottgccaaa taaaaggcc actcaacaatt gaaagccttc tatgaccag taaagaaggg attaaaccaat gccgttgaca agttaactt tgtcagttt agtotttgga ggtccccgag taccatttt gctgagtaat agtgcaagtg cattttaggt gcggtcacc ttcaaaagaa aaaaaaaaat tttcacttg gccaatgca; tgggtatcag gtgtcaatga atgacaggtg atgaatcca; aaataagttt attgaagga aaataaacta ctgccaagc caaaagggt aaaaaaggg aattaactgc tatgaatcci gacgccggcc tgnggatgcc gtgatgacca attottgaa; ttcctatgg cagaaatatt tacnggccta ctttcaatg; <210> 479 <211> 815</pre>	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaaa ttcaaaatct tcttagggta aaataaatac ccgtaatcaa ataaagaaggg attaaaccat gcaagccttc tatgaccag taaagaaggg attaaaccat gccgttgaca agttaactt ttgtcagttt agtctttgga ggtcccqag taccattti gctgagtaat agtgcaagtg cattttaggt gcggtcacc ttcaaaagaa aaaaaaaat tttcactttg gcgtaatcaa tgggtatcag gtgtcaatgc atgacaggg atgaatcaa aaataagttt atttgaagca aaataacaca ctgccaagca caaaagggt aaaaaaaggg aaataaacta ctgccaagca caaaagggt aaaaaaggg gagtaacca tatcttgaa tttcctatgg cagaaatatt tacnggccta cttcaatgg <210> 479 <211> 815 <212> DNA</pre>	a tagtttaagt gaagtaccat actgaaatt cactgagget aggttacca gaactatte gaacaaatac ttgacttgag actttatgag ttgcattcagag ctgagaaagcat	actittaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat caattaagtc acaactittc agttccatct ggcgtcaaaa	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatotggt tcaaaaaaatt gattgaccaa atagatttta taaaacaaat ctttgccaaa ttcaaaatet tcttaaggta aaataaatac cottgccaa; ttaaaaggcc actcaacaatt gaaagccttc tatgaccagt taaagaaggg attaaaccat gccgttgaca agttaacttt; gctgagtaat agtgcaagtg cattttaggt gcggtcacct tcaaaagaaga agaaaaaat tttcacttig gccaatgca; tgggatacag agaaaaaat tttcacttig gccaatgca; tgggtatcag gtgtcaatgc atgacaagtg atgaatcca; aaataagttt atttgaaga aaaaaaact cttgccaaga; caaaagggt aaaaaaggg aattaactgc tatgaatca; aactaagtg cagaaatgc gtgatgacca attcttgaa; ttcctatgg cagaaatatt tacnggccta ctttcaatg; </pre> <pre><210> 479 <211> 815 <212> DNA <213> Homo Sapiens</pre> <400> 479 gcgaagcggt ggctgggtc cgcttgggtc cgtcgctgc	Lagtttaagat gagatacct acctgagat agtgttacca aggattatca tagacctattca tagaccattattca tagaccattatca tagaccattatca cattatgag acttattcaga cattatcag cagaaagcat dagacgat	actttaaac aacatgtta tacacaagtg ccttgaaggc tgttactget aaaactagat caattaagt cacaactttc agttccatct ggcgcaaaa gtagaccgna	120 180 240 300 360 420 480 540 600 660 720
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatctggt tcaaaaaaatt gattgaccaa atagattttt aaaaacaaat ctttgccaaa: ttcaaaatct tcttagggta aaataaatac ccgtatctai ataaaagggc actcaacatt gaaagccttc tatgaccag taaagaaggg attaaaccat gccgttgaca agttaactt: ttgtcagttt agtctttgga ggtcccgag taccatttt; gctgagtaat agtgcaagtg cattttaggt gcggtcacct tcaaaagaa aaaaaaaat tttcacttg gccaatgcat tgggtatcag gtgtcaatgc atgacagggg atgacacac aaataagttt atttgaagca aaataaacta ctgccaaga: caaaaggga tataaaaggg aataaactac ctgccaaga: caaaaggac aaaaaggg agtaaacca attcttgaatct gacgccggcc tgnggatgcc gtgatgacca attcttgaatct ttcctatgg cagaatatt tacnggccta ctttcaatgg </pre> <pre><210> 479 </pre> <pre><211> 815 </pre> <pre><212> DNA </pre> <pre><213> Homo Sapiens</pre> <pre><400> 479</pre> <pre>gcgaagcgg ggctgggctg cgcttgggtc cgtcgcccagcagcg gcctagcgg aaaagtaaaa gatgtctga</pre>	a tagtttaagt c gcagtaccat c acctgagct a sqtgttacca a sqacttattc gaactattc c ttgacttgag a actttatgag a ttgattcag c gagaaagcat c ttgacttag c gagaaagcat c ttgacttag c gagaagcat c attgattcag c dagactatcag c dagactaccat c ttgacttcag c dagactaccat c ttgacttaccat c ttgacttaccat c ttgacttaccat c ttgacttaccat c ttgacttaccat c ttgacttaccat c tatattcagg	acttttaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaactagat caattaagtc actaagtc agttacatct ggcgtcaaaa gtagaccgna tgtcgggctt tgtcgggctt taaccgaaga	120 180 240 300 360 420 480 540 600 660 720 768
<pre><400> 478 ggtgtcaaaa aaaaatttta tttatotggt tcaaaaaaatt gattgaccaa atagatttta taaaacaaat ctttgccaaa ttcaaaatet tcttaaggta aaataaatac cottgccaa; ttaaaaggcc actcaacaatt gaaagccttc tatgaccagt taaagaaggg attaaaccat gccgttgaca agttaacttt; gctgagtaat agtgcaagtg cattttaggt gcggtcacct tcaaaagaaga agaaaaaat tttcacttig gccaatgca; tgggatacag agaaaaaat tttcacttig gccaatgca; tgggtatcag gtgtcaatgc atgacaagtg atgaatcca; aaataagttt atttgaaga aaaaaaact cttgccaaga; caaaagggt aaaaaaggg aattaactgc tatgaatca; aactaagtg cagaaatgc gtgatgacca attcttgaa; ttcctatgg cagaaatatt tacnggccta ctttcaatg; </pre> <pre><210> 479 <211> 815 <212> DNA <213> Homo Sapiens</pre> <400> 479 gcgaagcggt ggctgggtc cgcttgggtc cgtcgctgc	Lagtttaagt goagtacat actgaaatt acctggact agtgttacca agacttattc gaacaatta ctgaattaca cttgacttaga actttattagaa acttattcag gaagaagcat gaagaagcat aagngctt	actttaaac aaacatgtta tacacaagtg ccttgaaggc tgttactgct aaaactagat cactagtc acaactttc agttccatct ggcgctaaaa gtagaccgna	120 180 240 300 360 480 540 600 720 768

```
tatgagaggt gtccggctgg tagaaggaat tctgcatgcc ccagatgctg gctgqqqaaa
                                                                      300
tctggtgtat gttgtcaact atccaaaaga taacaaaaga aaaatggatg agacagatgc
ttcatcagca gtgaaagtga aaagagcagt ccagaaaaca tccgatttaa tagtgttggg
                                                                      420
teteceatgg aaaacaaccg aacaggacct gaaagagtat tttagtacct ttggagaaqt
                                                                      480
tettatggtg caggtcaaga aagatettaa gaetggteat teaaaggggt ttggetttgt
                                                                      540
tcgttttacg gaatatgaaa cacaagtgaa agtaatgtca cagcgacata tgatagatgg
                                                                      600
acgatggtgt gactgcaaac ttcctaattc taagcaaagc ccagatgaac ctttgagaag
                                                                      660
cagaaaagtg tttgtggggg cgctgtacag angacatgac tgangataan cttcnggagt
                                                                      720
tetttttta atacegggat gtgatggatg etteatttee caacecatte agggeetttg
                                                                      780
notttggtac catttgcaga tgatcanatt gccca
                                                                      815
      <210> 480
     <211> 812
      <212> DNA
     <213> Homo Sapiens
      <400> 480
gtggtgtcaa aaaaaatttt atttatctgg ttcaaaaaat tttttagaat gaatqcattt
                                                                       60
agattgacca aatagatttt taaaaacaaa tetttgecaa atagtttaag taettttaaa
                                                                      120
cttcaaaatc ttcttagggt aaaataaata cccgtatcta tgcagtacca taaacatgtt
                                                                      180
aataaaagge cactcaacat tgaaageett etatgaccag taactgaaat ttacacaagt
                                                                      240
gtaaagaagg gattaaacca tgccgttgac aagttaactt acccctgggc tccttgaagg
                                                                      300
cttgtcagtt tagtctttgg aggtccccga gtaccatttt aagtgttacc atgttactgc
                                                                      360
tgctgagtaa tagtgcaagt gcattttagg tgcggtcacc cagacttatt caaaactaga
                                                                      420
tttcaaaaga aaaaaaaaa ttttcacttt ggccaatgca agaacaaata ccaattaagt
                                                                      480
ctgggtatca ggtgtcaatg catgacaggt gatgaatcca tttgacttga gacaactttt
                                                                      540
caaataagtt tatttgaagc aaaataaact actgccaaga aactttatga aaagttccat
                                                                      600
cttcaaaagg ggtcaaaaaa ggggaattaa ctgctatgaa ttctttgcat tcanggctgc
                                                                      660
aaaacaaaga ccccatatta tttaaaatcc agtttattta agaatttncc accntggaca
                                                                      720
acttettatt aaaaaggent teeaggeeca nggaccacag aaactgnang ccaaacange
                                                                      780
atttcttatg gggtagctta ccaggacctt tt
                                                                      812
     <210> 481
     <211> 1127
      <212> DNA
     <213> Homo Sapiens
     <400> 481
gaggacagca atttaatggc aaaggaaaga caagacaggc tgcgaaacac gatgetgetg
ccaaagcgtt gaggatcctg cagaatgagc ccctgccaga gaggctggag gtgaatggaa
                                                                      120
gagaatccga agaagaaaat ctcaataaat ctgaaataag tcaagtgttt gagattqcac
                                                                      180
ttaaacggaa cttgcctgtg aatttcgagg tggcccggga gagtggccca ccccacatga
                                                                      240
agaactttgt gaccaaggtt tcggttgggg agtttgtggg ggaaggtgaa gggaaaagca
                                                                      300
agaagatttc aaagaaaaat gccgccatag ctgttcttga ggagctgaag aagttaccgc
                                                                      360
ccctgcctgc agttgaacga gtaaagccta gaatcaaaaa gaaaacaaaa cccatagtca
                                                                      420
agccacagac aagcccagaa tatggccagg ggatcaatcc gattagccga ctgqccaga
                                                                      480
tecageagge aaaaaaggag aaggageeag agtacaeget ceteacagag egaggeetee
                                                                      540
cgcgccgcag ggagtttgtg atgcaggtga aggttggaaa ccacactgca gaaggaacgg
                                                                      600
gcaccaacaa gaaggtggcc aagcgcaatg cagccgagaa catgctggag atccttggtt
                                                                      660
tcaaagtccc gcaggcgcag cccaccaaac ccgcactcaa gtcagaggag aagacacca
                                                                      720
taaagaaacc aggggatgga agaaaagtaa ccttttttga acctggctct ggggatgaaa
                                                                      780
atgggactag taataaagag gatgagttca ggatgcctta tctaagtcat cagcagctgc
                                                                      840
ctgctggaat tcttcccatg gtgcccgagg tcgcccaggc tgtaggagtt agtcaaggac
                                                                      900
atcacaccaa agattttacc agggcagete egaateetge caaggecaeg gtaactgeca
                                                                     960
tgatagcccg agagttgttg tatgggggca cctcgcccac agcccgagac cattttaaag
```

1020

gactatettt neagagteea				tgagcaactg	1127
<210> 482					
<211> 773					
<212> DNA					
<213> Homo Sapie	ens				
<400> 482					
taccgcccct gcctgcagtt	gaacgagtaa	agcctagaat	caaaaagaaa	acaaaaccca	60
tagtcaagcc acagacaagc	ccagaatatg	gccaggggat	caatccgatt	agccgactgg	120
cccagatcca gcaggcaaaa	aaggagaagg	agccagagta	cacgeteete	acagagcgag	180
gcctcccgcg ccgcagggag	tttgtgatgc	aggtgaaggt	tggaaaccac	actgcagaag	240
gaacgggcac caacaagaag	gtggccaagc	gcaatgcagc	cgagaacatg	ctggagatcc	300
ttggtttcaa agtcccgcag	gcgcagccca	ccaaacccgc	actcaagtca	gaggagaaga	360
cacccataaa gaaaccaggg	gatggaagaa	aagtaacctt	ttttgaacct	ggctctgggg	420
atgaaaatgg gactagtaat	aaagaggatg	agttcaggat	gccttatcta	agtcatcagc	480
agctgcctgc tggaattctt	cccatggtgc	ccgaggtcgc	ccaggctgta	ggagttagtc	540
aaggacatca caccaaagat	tttaccaggg	cagctccgaa	tcctgccaag	gccacggtaa	600
ctgccatgat agcccgagag	ttgttgtatg	ggggcacctc	gcccacagcc	cgagaccatt	660
ttaaagaata acatctcttc	aggccacgta	ccccatggac	ctctcacgag	accetntgag	720
caactggact atctttncag	agtccaggga	ttncaggttg	aataccaaga	ctt	773
<210> 483					
<211> 794					
<212> DNA					
<213> Homo Sapie	ens				
<400> 483					
cattagtagc tgttnattga	tcaanggttn	gatataaagt	tatttcanat	cttcanactt	60
cattagtagc tgttnattga ttgcccagat ggaatcacaa	gcattacaaa	gttttttctt	aaaaataaaa	aaaggatagg	60 120
cattagtagc tgttnattga ttgcccagat ggaatcacaa ggcaagttgg gaggggacca	gcattacaaa acctagcagt	gttttttctt agnggcattt	aaaaataaaa ganaataaat	aaaggatagg tancaaaaaa	
cattagtagc tgttnattga ttgcccagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt	gcattacaaa acctagcagt gatgacaaac	gttttttctt agnggcattt acttaagttt	aaaaataaaa ganaataaat tacttacatt	aaaggatagg tancaaaaaa ccatggggag	120
cattagtago tgttnattga ttgcccagat ggaatcacaa ggcaagttgg gagggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa	gcattacaaa acctagcagt gatgacaaac tgaatggaag	gtttttctt agnggcattt acttaagttt cagtacttaa	aaaaataaaa ganaataaat tacttacatt ctcgcagggc	aaaggatagg tancaaaaaa ccatggggag taccaggctt	120 180
cattagtago tgttnattga ttgcccagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacacgcag	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng	gtttttctt agnggcattt acttaagttt cagtacttaa cacacacttc	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat	120 180 240 300 360
cattagtage tgttnattga ttgcocagat ggaatcacaa ggcaagttgg gagggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacacgcag caaaagcaac acagntgtat	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt	gtttttctt agnggcattt acttaagttt cagtacttaa cacacacttc aggtcattct	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg	120 180 240 300 360 420
cattagtagc tgttnattga ttgcccagat ggaatcacaa ggcaagttgg gagggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacacgcag caaaagcaaa acagntgtat taattaacag tatcagacag	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat	gttttttett agnggcattt acttaagttt cagtacttaa cacacacttc aggtcattct cactctgcag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga	120 180 240 300 360 420 480
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aanaattcca gcgtaaacca ccattacgga ccacagcag caaaagcaac acagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgtag	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa	gttttttett agnggcattt acttaagttt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca	120 180 240 300 360 420 480 540
cattagtagc tgttnattga ttgccagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacacgaca caaaagcaaa cacagtgat taattaacag tatcgagcac gatcatatcc tgtagtgtag atgttttta ataatttta	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagat	gtttttctt agnggcattt acttaagttt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctg	aaaggatagg tancaaaaaa ccatggggag taccaggctt ancacaacat aanggagatg actacatgga tagatncaca tttgcattac	120 180 240 300 360 420 480 540
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gggtaaacca tccatacgga ccacaggag caaaagcaac acagntgtat taattaacag tatcgagcac gatoatatcc tgtagtgtag atgttttta ataatcttta caaaaataaa aatgaaataa	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaac tgaaagctaa aaacagagat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaagg ccaaagttcat aaatgaacat	aaaataaaa ganaataaat tacttacaat ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctg ctaangttta	aaaggatagg tancaaaaaa ccatggggag taccaggctt ancacaacat aanggagatg actacatgga tagatncaca tttgcattaa aaattcctaa	120 180 240 300 360 420 480 540 600
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaaccaa ccatacgga ccacagcag caaaagcaac acagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgtag atgtttttta ataatcttta caaaaataaa aatgaaataa atnggccaat ttatncaact	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagaat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgtnattga tgccagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattca gcgtaaaaca ccatacgga ccacagcga caaaagcaa cacaggga caaaagcaa tatcgagcac gatcatatcc tgtagtgtag atgttttta ataatctta caaaaataaa aatgaaataa atnggccaat ttatncaact tggtttcaag ctggaaccca	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagaat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaaccaa ccatacgga ccacagcag caaaagcaac acagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgtag atgtttttta ataatcttta caaaaataaa aatgaaataa atnggccaat ttatncaact	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagaat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacacgcag caaaagcaac acagntgtat taattaacag tatcgagcac gatoatatcc tgtagtgtag atgtttttta ataatcttta Caaaaataaa aatgaaataa atnggccaat ttatncaact tggtttcaag ctggaaccca ggggttaagc caaa	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagaat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggaca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacagcag caaaagcaac acagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgta atgtttttta ataatcttta caaaaataaa aatgaaaataa atnggccaat ttatncaact tggtttcaag ctggaaccca ggggttaagc caaa <210> 484 <211> 788	gcattacaaa acctagcagt gatgacaaaa tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagaat aaatggaacc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgtnattga ttgcccagat ggsataccaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattca gcgtaaaaca ccatacgga ccacagcag caaaagcaa tattgagcac gatcatatcc tgtagtgtag atgttttta ataatttta caaaaataaa aatgaaataa atnggccaat ttatncaact tggtttcaag ctggaacca ggggttaagc caa <210> 484 <211> 788 <212> DNA	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagat aaatggaac ggnggggaga ggggggcccc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggaca atttagtatt accattnatt aaaaattcca gcgtaaacaa tccatacgga ccacagcag caaaagcaac acagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgta atgtttttta ataatcttta caaaaataaa aatgaaaataa atnggccaat ttatncaact tggtttcaag ctggaaccca ggggttaagc caaa <210> 484 <211> 788	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagat aaatggaac ggnggggaga ggggggcccc	gtttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga caaagttcat aaatgaacat cttattcaag	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tgtgtncagt tttcagccct gtttatatgg gccatatgta ttaagncctta ctaangttta ggttttgaaa	aaaggatagg tancaaaaaa ccatggggag taccaggett ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aanaattcca gcgtaaacaa tccatacgga ccacacgcag caaaagcaac caagntgtat taattaacaag tatcgagcac gatoatatcc tgtagtgtag atgtttttta ataatctta caaaaataaa aatgaaataa atnggccaat ttatncaact tggtttcaag ctggaaccca ggggttaagc caaa <210 > 484 <211 > 788 <212 > DNA <213 > Homo Sapie <400 > 484	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tgaaagctaa aaacagagat aaatggaacc ggngggaaga gggggcccc	gttttttctt agnggcattt acttaagttt cagtacttaa cacacacttc aggtcattct cactctgcag gtcctcaaga cacagttcaagtcat catattcaggtcattct cagttctcagg cacagtccag cacagttcat cacatttattcaag acaatttggc	aaaaataaaa ganaataaat tacttacaatt ctcgcagggc tttcagccct gttttatatgg gccatatgta ttaagncctg ctaangttta ggttttgaaa attcnctgga	aaaggatagg tancaaaaaa ccatggggag taccaggctt ancacaacat aanggagatg actacatgga tagatncaca tttgcattac aaattcctaa gtccaggaac aactggccct	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg ggagggacca atttagtatt accattnatt acaaattcca gcgtaaacaa tccatacgga ccacagcag caaaagcaaa cacagtgat taattaacag tatcgagtat tattaacag tatcgagcac gatcattcc tgtagtgtag atgttttta ataatcttta caaaaataaa aatgaaataa atnggccaa ttatncaact tggtttcaag ctggaacca ggggttaagc caaa <210 > 484 <221 > 788 <212 > DNA <213 > Homo Sapie <400 > 484 caagaccaga aggaaatgca	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaat tngaaagctaa aaacagagat aaatggaac ggngggaga ggggggcccc	gttttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct ggtcattct gtcccaaga cacagttcaagt caaagttcat cttattcaag acaatttggc acaatttggc acaatttggc	aaaaataaaa ganaataaat tacttacaatt ctcgcagggc tgtgtncagt tttcagccet gtttatatgg gccatatgta ttaangcctg ctaangttta ggtttpaaa attenctgga cacaattatc	aaagatagg tancaaaaa catgggag taccaggett ancacaacat aanggagatg actacatgga tacgatncaca ttggatncaca ttggattac aaattcctaa gtccaggac	120 180 240 300 360 420 480 540 600 660 720
cattagtagc tgttnattga ttgcccagat ggsataccaca ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattcca gcgtaaaaca tccatacgga ccacacgcag caaaagcaca cacagntgtat taattaacag tatcgagcac gatcatatcc tgtagtgtag atgtttttta ataatttta Caaaaataaa aatgaaataa atnggccaat tatncaact tggtttcaag ctggaaccca ggggttaagc caaa <210> 484 <211> 788 <212> DNA <213> Homo Sapie <400> 484 caagaccaga aggaaatgca tcagtgcgt tgaaaccagg	gcattacaaa acctagcagt gatgacaaac tgaatggaag agcetcagng acagaacgt tntggaaaact tgaaagctaa aaacagagat aaatggaac ggngggaga gggggcccc	gttttttctt agnggcattt acttaagtt cagtacttaa cacacacttc aggtcattct agtcctcaag gtcctcaaga caaagtcat cattttcag gtcctcaaga caaagtcat cttattcaag acaatttggc agattggggt agatggggtt accaagggtt	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tttcagccct gttttatagg gccatatgta ttaagncctg ctaangtta ggttttgaaa attcnctgga cacaattatc qtacagatt	aaagatagg tancaaaaaa ccatggggg taccaggett ancacaacat aanggagatg actacatgga atgatncaca tttgcattac attccaaggect aastcctaa gtccaggac aactgccct aaggac actggccct	120 180 240 300 360 420 540 600 720 780 794
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg gaggggacca atttagtatt accattnatt aaaaattca gcgtaaacca tccatacgga ccacacgcag caaaagcaac acagntgtat taattaacaag tatcgagcag gatcatatcc tgtagtgtag atgtttttta ataatcttta caaaaataaa aatgaaactaa tcggtttcaag ctggaaccca ggggttaagc caaa <210> 484 <211> 788 <212> DNA <213> Homo Sapie <400> 484 caagaccaga aggaaatga tcagtgcggt tgaaaccag cagaccaga aggaaatga tcagtgcggt caaaacaga ccagaagcagaagctcagagcaccagaagcaccagaagcagaaccagaagtcaaaggc	gcattacaaaa acctagcagt gatgacaaac tgaatggaag agcctcagng acagaaacgt tntggaaaac traaatggaaac tgaaagctaa aaacagagat aaatggaacc ggngggaaa gggggcccc ans cagttggata ggtataaatg	gttttttctt agnggcattt acttaagtt cagtacttaa cacacattc agstcattct cactctgcag gtcctcaaga caaagttcat cattattcaag acaatttgc agatagggt agatggggt acaaggaggtt acaaggagtt acaaggagtt acaaggagtt	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tttcagccct gtttatatgg gccatatgta ttaanncttg ttaangttta ggttttgaaa attcnctgga cacaattatc gtacaagagtt	aaagatagg tancaaaaaa caaggat taccagggt taccagget ancacaacat aanggagatg actacatgga taggatncaca ttggatncaca ttggattac aaattcctaa gtccaggaac aactggecot aggaaaatgga gtggggggggggggggggggggggg	120 180 240 300 360 420 480 540 600 660 720 780 794
cattagtagc tgttnattga ttgccoagat ggaatcacaa ggcaagttgg ggagggacca atttagtatt accattnatt acaaattcca gcgtaaacaa tccatacgga ccacagcag caaaagcaaa cacagtgat taattaacag tatcgagtat tattaacag tatcgagcac gatcattcc tgtagtgtag atgttttta ataatcttta caaaaataaa aatgaaataa atnggccaa ttatncaact tggtttcaag ctggaacca ggggttaagc caaa <210 > 484 <221 > 788 <212 > DNA <213 > Homo Sapie <400 > 484 caagaccaga aggaaatgca	gcattacaaaa acctagcaagt gatgacaaact gaatggaag acagaacgt tntggaaagttaa aaacagagat aaacagagat asagggagcccc ens ens cagttggaaa	gttttttett agnggcattt acttaagtt cagtactta cagtcacttc aggtcattct cagtcatcca gtcctcaaga caacagtccat cttattcaag acaagttcat cttattcaag acaatttggc agatggggtt accaaggggtt accaaggatt tgatggatgt	aaaaataaaa ganaataaat tacttacatt ctcgcagggc tttcagcctt tttcagcctt ttaattg gccatatgta ttaagnectg ctaangttta ggttttgaaa attenctgga cacaattatc gtacagagt aaaaacatcc	aaaggatagg tancaaaaaa ccatggggg taccaggett aanggagatg actacatggatga tagatncaca tttgcattac aasttcctaa gtccaggacc aactggccct agaaaaatgca gtgggggtga aagagaggtga aatgaggtgg	120 180 240 300 480 540 600 720 780 794

120

180

```
ccaaaagegg cageccagaa tetegtgtta atgegateca tttettggta cacaaactge
cagagaagaa taaagagatg ttggatattt tggtgaaaca cttaacaaat qtttcaaatc
                                                                       420
actocaagca gaacctgatg actgtggcaa acttaggagt ggtgtttgga ccaactctga
                                                                       480
tgaggccaca ggaagaaact gtcgctgcct catggacttg aaqtttcaga atattgttgt
                                                                       540
ggaaatetta attgaaaace atgaaaagat tttteggaeg eegneegata etacatteee
                                                                       600
tgaqcccacc tgcctgtcag catcaccccc aaatgcgcca ccaangcagt cnaagagaca
                                                                      660
aggncagaga accaagaagg cccgtgggcc gtctacaatc tttggctgga gctggaaaga
                                                                      720
tggtgacaat cottaccott tocanggagg acacccotta ccacagtotg gactcacttt
                                                                      780
tetteecq
                                                                       788
      <210> 485
      <211> 430
      <212> DNA
      <213> Homo Sapiens
      <400> 485
agtaaattac agtttatttc atttacagag accttgaggc aaaaaggtgg tgtttggaaa
                                                                       60
acagcacacg ggtgaggagc accggagaag cctgttacaa atacgccagt gcacgctgcc
                                                                       120
agtgcagtga gtgtggggtc ctgcaggtgg ccgtctagga agggcaggct tgagacgcgc
                                                                       180
gtototgott cootnigact tgagaccatc tocottgnac caacagcage tintocaage
                                                                       240
taggetgeca cagecaagea cacactetge aaacetatea etgegagtng tacagtteee
                                                                      300
tttanaatcg nagcagcang tgctcaggga ggagagggag ccnnngtggc tctggtgqcq
                                                                      360
tgactgccag tgnaggcgga cacangtggc ataaggctgc ccgtcccctc tcattcttat
                                                                      420
atgctgngat
                                                                      430
     <210> 486
      <211> 831
     <212> DNA
      <213 > Homo Sapiens
      <400> 486
aaagtgtagt gccatcgaca caggetgtca egtttteeec ttetttteac aatcaaqcaa
                                                                       60
ttatggtgac aaaaccagtg caggaatata aaaaggaata cacagtgcag caggccttgt
                                                                       120
tttgtacttc tggaattgtt acttctatac cggtgccctt ggcaggaagt gcccttctcc
                                                                       180
catateatat tteatetaet geatgteagg ceaaggetea tetgteatet gatgatagta
                                                                       240
attcaaatgg tgattctgcc caagtgcata ttgccacaaa aaacagagaa gaaaaagcag
                                                                      300
cttgtctcag aaatatttgt ttaccttcag aacacaatcc aggtaatcag aatgatttta
                                                                      360
aaccaactaa tgacgatatt gaaatgcaga gttcctcaaa attaccaaat gatcctgcaa
                                                                      420
ttattagcaa cttttctgca gcagtggtgc atacgatagt aaatgaaact ttagagtcaa
                                                                      480
tgacatcatt ggaagttaca aaaatggttg atgaacgtac agattattta actaaatctt
                                                                      540
taaaggagaa aacccctcca ttttcccact gtgatcaggc agtgctgcaa tgcagtgaag
                                                                      600
ctagtagcaa taaggacatg tttgctgacc ggttatctaa atctattatt aaacattcca
                                                                       660
tagataagag caaatcagtg atcccaaata tagataaaaa tgcagtatac aaggaaagct
                                                                      720
tgcctqtttc tggagaagaa tcacagttga cacccagaaa agtcttncca aatttnctga
                                                                      780
ctcttcagaa tcagtttaac ttactggttc acttttagct gcaaaqqaat q
                                                                      831
      <210> 487
      <211> 728
      <212> DNA
      <213> Homo Sapiens
      <400> 487
gacggagtct gtctctgtcg cccaggatgg agtacagtgg cacaatctca gctcactgca
```

atctctgcct cccaggttca agcaattctc ctgccttagc ctcccaagta gctgggatta

caggtgcctg ccaccacgcc tggctaattt ttgtattttt ggtagagacg gggtttcacc

```
atgttgccca ggctggtctt gaactcctga cctcaagtga tccaccccca cccccattgg
cttcccagag ttctgggatt acaggcgtga atcaccgcgc ccagcccaaa tcgccgaaqt
                                                                      300
ctttatctcc taccttgatc tctgtagcag aaaagaacag tatagatatc aattgtcatc
                                                                      360
aacagatgca acatatcttg taaatcaata tattttcaag tgaggtctct gaatcacctg
                                                                      420
cactgaaatc atctgtgatg cttatcaagc atgcagattc tcaggaccct tcactgactt
                                                                      480
cataaatett catetetgga ggtgagacce tggacactgt atatgcaacg agcacaccac
                                                                      540
caatcotgga tgagccccgc tttttctctg tgccagaacc ttaatgccac gcagcattac
                                                                      600
attaagtcac attacaactt tggtcaatgg aaacacaggg tctttttctg acaaaatgcc
                                                                      660
atcaagccag gtttggctcc ccacttaagt tcaaatnttt aatcattaat tttctgagcc
                                                                      720
taaaatgc
                                                                      728
      <210> 488
      <211> 788 -
      <212> DNA
      <213> Homo Sapiens
      <400> 488
gtgggccetg teetttetee ceageteetg eeceggagee gggceetgge gaggeaggaa
                                                                       60
tggccccgag gcctccgacc gccgcgcccc aggaatcagt gacattcaaa gatqtqtctq
                                                                      120
tggacttcac ccaggaagaa tggtaccatg tcgaccctgc tcagaggagc ttatacaggg
atgtgatgct ggagaactat agccacctgg tttctcttgg atatcaagtt tccaagccag
                                                                      240
aggtgatett caaattggag caaggagaag agccatggat atcagaggga gaaatccaac
                                                                      300
gacettteta tecagactgg aagaccagge etgaagteaa ateateacat ttgcagcagg
                                                                      360
atgtatcaga agtatcccac tgcacacatg atctcttaca tgctacatta gaagactcct
                                                                      420
gggatgttag cagccagtta gacgggcaac aggaaaactg gaagagacat ctgggatcag
                                                                      480
aggeatecae ecagaagaaa ataattacae cacaagaaaa ttttgagcaa aataaatttg
                                                                      540
gtgaaaattc tagattgaac accaatttgg ttacacaact gaacattcct gcaagaataa
                                                                      600
ggcctagtga atgtgagacc cttggaagca atttgggaca taatgcagac ttacttaatg
                                                                      660
agaataatat tottgcaaaa aagaaaccot tttagtgnga taatgtagaa aagnotttan
                                                                      720
tcatagatca tcgnttacta aaccttgaga aaacccctta anggaaaagg gagettteet
                                                                      780
aatgggac
                                                                      788
     <210> 489
      <211> 875
      <212> DNA
      <213> Homo Sapiens
      <400> 489
aaagagatgg ggtttcacca tgttgtccag gctggtcttg aactctgggt tcaagcagtc
                                                                       60
tatctgcctt agccacccaa agtgctggga ttacaggtgt gagacaccat acctagccaa
                                                                      120
gttaattttt ttaatggtga aatcttttct ttgcacataa aatgagccag tgcatgttgc
                                                                      180
ttetetgagt acaagacaaa atttatggca atgggcaatt agaettatac ttttetgcaa
                                                                      240
gaaaattaac gggaaaattc tcctcttagt tttctgttgt tttcccattg atctgatact
                                                                      300
gtaggettaa gaaagtgett tttcatgggc atgccataaa aagtacaata aggggaetta
                                                                      360
atagttetgt gaaactggca tatgttaget gaaagtataa ttgtaactgg gaaaagggga
                                                                      420
aaaaagtcac tagtagttca accatctaca gtttctgtta aattgtggtt tgtaagcctc
                                                                      480
caagaagttg ctttaaatag tttgtgataa atttgcatac attttgctcc cacttatact
                                                                      540
tttaagaatt ctcaaagtgt ccaacccata ggtgcccatt aaatgtttgt gtatctgatc
                                                                      600
atcttaaaat ttattttaaa geeetetgag teecaaaaat aacettttea etggeaagge
                                                                      660
catggggccc caaatccagg aaaccctggc atttttaacc caacttttac ccttataggc
                                                                      720
tggaatcata ctgngggaaa cccacttcac atcttttggc tttcagtctt caatctgncc
                                                                      780
cnaatggaaa atgggttggg cctagttgga actaaattct tttgaatggg ggactttcct
                                                                      840
```

<210> 490

ggaaattggg aactnggttt ccatggggga aagtt

<211> 844 <212> DNA

<213> Homo Sapiens

<400> 490

aagtgtttga gattgcactt aaacggaact tgcctgtgaa tttcgaggtg gcccgggaga 60 gtggcccacc ccacatgaag aactttgtga ccaaggtttc ggttggggag tttgtggggg 120 aaggtgaagg gaaaagcaag aagatttcaa agaaaaatgc cgccatagct gttcttgagg 180 aqctqaagaa gttaccgccc ctgcctgcag ttgaacgagt aaagcctaga atcaaaaaga 240 aaacaaaacc catagtcaag ccacagacaa gcccagaata tggccagggg atcaatccga 300 ttagccgact ggcccagatc cagcaggcaa aaaaggagaa ggaqccagag tacacgctcc 360 tcacagagcg aggcctcccg cgccgcaggg agtttgtgat gcaggtgaag gttggaaacc 420 acactgcaga aggaacgggc accaacaaga aggtggccaa gcgcaatgca gccgagaaca 480 tgctggagat ccttggtttc aaagtcccgc aggcgcagcc caccaaaccc qcactcaaqt 540 cagaggagaa gacacccata aagaaaccag gggatggaag aaaagtaacc ttttttgaac 600 ctgctcttgg ggatgaaaat gggactagta ataaagagga tgagttcagg atgccttatc 660 taagtcatca gcagctgcct gctggaattc tttccatggt gcccgangtc gcccaagctg 720 taggaagtta gtcaaggaca tnacacccaa gattttacca ggcagcttcg aatcttqcca 780 nggenengta etgecatgat ageceanagt tgttgtattg gggcanettt gececaggee 840 ggga 844

<210> 491

<211> 825 <212> DNA

<213> Homo Sapiens

<400> 491

cattagtagc tgtttattga tcaatggttt gatataaagt tatttcanat cttcagactt 60 ttgcccagat ggaatcacaa gcattacaaa gttttttctt aaaaataaaa aaaggatagg 120 ggcaagttgg gaggggacca acctagcagt agtggcattt gagaataaat taacaaaaaa 180 atttagtatt accatttatt gatgacaaac acttaagttt tacttacatt ccatggggag 240 aaaaattcca gcgtaaacaa tgaatggaag cagtacttaa ctcgcagggc taccaggctt 300 tccatacgga ccacacgcag agcctcagtg cacacacttc tgtgtacagt aacacaacat 360 caaaagcaac acagctgtat acagaaacgt aggtcattct tttcagccct aatggagatg 420 taattaacag tatcgagcac tctggaaaat cactctgcag gtttatatgg actacatgga 480 gatcatatcc tgtagtgtag tgaaagctaa gtcctcaaga gccatatgta tagatacaca 540 atgtttttta ataatettta aaacagagat caaagtteat ttaaagteet gtttgeatta 600 acaaaaataa aaatganaat aaaaatggac caaatgatca tctaaagttt aaaattccta aatggtccaa tttatacaac tgggggagac ttattcaagg tttttgaaag tccaggactg 720 gtttcagctg aaccagangg cccccaattt gcatcactgg aactgnectg ggtttagcca 780 aggaaattaa aaaagnetta acceeettee eetgggattt gaace 825

<210> 492

<211> 946

<212> DNA

<213> Homo Sapiens

<400> 492

gaggacagca atttaatggc aaaggaaaga caagacaggc tgcgaaacac gatgctgctg 60 ccaaaggctt gaggatcctg cagaatgaga ccctgccaga gaggctggaa gtgaatggaa 120 gagaatgccg agagatcccga agaggatcccga ccccacatgaataat ctcaaataaat ctgaaataag tcaaaggttt gagattgcac 240 agaactttgt gaccaaggtt tcggttgggg agtttgtggg gaggtggaa gggaaaagca 300 agaagattt aaaagaaaaat gccgccatag ctgttcttga gagacttgaa gagttaccgc ccccacatgta ccctgcctgc agttgaacga gtaaagccta gaatcaaaaa gccgccatag ccctgccttgc agttgaacga gtaaagccta gaatcaaaaa gaaaaacaaaa cccatagtca 420

```
agccacagac aagcccagaa tatggccagg ggatcaatcc gattagccqa ctqqcccaqa
                                                                      480
tecageagge aaaaaaggag aaggageeag agtacaeget ceteacagag egaggeetne
                                                                      540
cgcgccgcag ggagtttgtg atgcaggtga aggttggaaa ccacacttgc agaaggaacg
                                                                      600
ggcaccaaca agaaggtggc caagcgcaat gcacccgaga acatgctgga gatccttqqt
                                                                      660
ttcaaaagtc ccgcangcgc agcccaccaa acccggactn aagtcagang agaagacccc
                                                                      720
attaaggaaa ccangggatg gaagaaaagt anchttttga anctggctnt tgggattaaa
                                                                      780
atgggettgt antaaagagg atgagtteag gatgnentat etaagteatn aacaettget
                                                                      840
getggaaate tttccatggg ggccgaggte neceagettt taggagttat canggcentt
                                                                      900
concocaaga attttcccgg gcagtttcca atctgccaag gccccg
                                                                      946
      <210> 493
      <211> 804
      <212> DNA
      <213> Homo Sapiens
      <400> 493
ggtctttatg tgcttaaata acgctgaatt ataattagcc acacaaataa tgagagtttt
                                                                       60
attttttttt totggotoac tocaaatcag cotgttaagg tatatttoot totacageet
                                                                      120
ttcctgattt tgcatgttct cattcccaaa gtagtctacc ttagtttaca ctcaaaggta
                                                                      180
gcacttgttg aaactacatg acagaaacaq gctqcaaaqq tqqacaaqqq gaaqcatgtc
                                                                      240
cctcttgtct tgataaatca gtgccacaca cagaacccac attttctgag acattatctt
                                                                      300
cattatagag cogtttgatt coatcataga agtcatccac ttccatttcc tctactttgc
                                                                      360
gtttagtaga ggtctgcttg cacccactgg cagctgggag atgatggtaa aaggctgctg
                                                                      420
tacctetgac tggcacttet ggcttgetgt tgtccttgga gaagtetggg cctgggacag
                                                                      480
aggagggatg taatctgaac actcctttgt cacaggtcac cagggtgtgc ttgaggggac
                                                                      540
ggtagacata aacggaattc agaggcaggg aagactgcag agtanaaagg tgatgtgccc
                                                                      600
aagetteega ceatggatea actqqqaqet atneatetqq etttetqaaq cagnteaatt
                                                                      660
gtaagagaaa gcccaatcon ggaatggagt tentccattt teagactaac cetgggenen
                                                                      720
aagcaaggca tgggatcccc tggaattgcc anaaanttgg gttgcagggn ccatacncgg
                                                                      780
nggnaagtaa ttngctttgg gtaa
                                                                      804
      <210> 494
      <211> 856
      <212> DNA
      <213> Homo Sapiens
      <400> 494
gaaaggttgg aaagaataaa tagggccagg gaacaaggat ggagaaatgt gctaagtgct
                                                                       60
ggtggaagtg gtgaagtaaa ggctcctttt ctgggcagtg gagggactat agctccatca
                                                                      120
tettttett etegaggaca gtatgaacat taccatgeca tttttgacca aatgeagcaa
                                                                      180
caaagagcag aagataatga agctaaatgg aaaagagaaa tatatggtcg aggtcttcca
                                                                      240
gaaaggcaaa aagggcagct agctgtagaa agagctaaac aagtagaaga gttcctgcag
                                                                      300
cgaaaacggg aagctatgca gaataaagct cgagccgaag gacatatggg aatcctgcaa
                                                                      360
aacctggcag ctatgtatgg aggcaggccc agctcttcaa gaggagggaa gccaagaaac
                                                                      420
aaagaggaag aggtttatct ggcaagactg aggcaaataa gactacagaa tttcaatgag
                                                                      480
cgccaacaga ttaaagccaa acttcgtggt gaaaagaaag aagctaatca ttctgaagga
                                                                       540
caagaaggaa gtgaagaggc tgacatgagg cgcaaaaaaaa atcgaatcac tgaaggccca
                                                                      600
tgcaaatgca cgtgctgctg tctaaaagaa cactagaacg aaagagaaag gaggcttatg
                                                                      660
agagagaaaa aaaagtgtgg gaagagcatt tggtggctaa aggagttaag agtctgatgg
                                                                      720
ttcttcccct ttgggaccag catgaaacaa ggtggctttt ccttcaaagc caccggatga
                                                                      780
aaanctggta nttctggnac ttcacttttn aagaanttgg ccgtggnngt agtttaactg
                                                                       840
gatacccggg aactte
                                                                       856
```

<210> 495 <211> 757 <212> DNA

<213> Homo Sapiens

<400> 495

agataataaa aatttaatag caatatcata aaataaacac acatattaaa aaatcaagta 60 tttagtttcq gatattagaa ataatataca taataaattc aacatactga tagtgctgca 120 agataagatt ttatttttca aattacatat tatgccaacc agcctgcttt ggactcagag 180 gttcaaaaac tttgctttta ttacgaagaa catntggact gtaqacacct ntaacqaaac 240 caggittatac tiggicatati gnqatigaaq ciqtiqate aacatettaa tiqacetaact 300 aaatcctntc ataacaqaaa qaaqttcaac aqqcaaacat ttccctccct aqqatcctaq 360 ttaccaaaac tqtcacaqnq ncaaaataaa aataattatt tcctcctttt taacatctta 420 ttgnccttga agcttatgta tggaggaagt taaaaaccaa aagagcaact ttaagctata 480 tgctaagtca gngttaaatc cacagactaa tttttcgata tagnattcct qqntctqqnc 540 cttaaagaga aataaaggca ttaaaccact tttttatatg tcaaggaaat ataatttngc 600 tattetttea taateaaate ttteaatgga tttetaagae tggnttetae ageetgngng 660 ctagttccag gggacacact gattgtaaaa nggacttggn ggaaatntaa aactttaaqq 720 gctaaaaaat ttcatctttc aaaatgntnt agatgtt 757

<210> 496 <211> 1759 <212> DNA

<213> Homo Sapiens

<400> 496

cgaggatcca ggcgcaggag gacagagcaa tgggtgagag aactettcac gctgcagtgc 60 ccacaccagg ttatccagaa tctgaatcca tcatgatggc ccccatttgt ctagtggaaa 120 accaggaaga gcagctgaca gtgaattcaa aggcattaga gattcttqac aaqatttctc 180 agecegtggt ggtggtggec attgtaggge tatacegeae aggaaaatce tateteatga 240 atequettqc aggaaaqcqc aatqqcttcc ctctqqqctc cacqqtqcaq tctqaaacta 300 agggcatctq gatgtggtgt gtgcccacc tctctaagcc aaaccacacc ctggtccttc tqqacaccqa qqqcctqqqc qatqtaqaaa aqaqtaaccc taaqaatqac tcqtqqatct 420 ttgccctggc tgtgcttcta agcagcagct ttgtctataa cagcgtgagc accatcaacc 480 accaggeest ggageagetg cactatgtga etgagetage agagetaate agggeaaaat 540 cctgccccag acctgatgaa gctgaggact ccagcgagtt tqcqagtttc tttccaqact ttatttqqac tgttcgggat tttaccctgg agctaaagtt agatggaaac cccatcacag 660 aagatgagta cctggagaat gccttgaagc tqattccaqq caaqaatccc aaaattcaaa 720 attcaaacat qcctaqaqaq tqtatcaqqc atttcttccq aaaacqqaaq tqctttqtct 780 ttgaccggcc tacaaatgac aagcaatatt taaatcatat ggacgaagtg ccagaagaaa 840 atotggaaag goatttoott atgoaatoag acaacttotg ttottatato ttoaccoatg 900 caaagaccaa gaccctgaga gagggaatca ttgtcactgg aaagcggctg gggactctgg 960 tggtgactta tgtagatgcc atcaacagtg gagcagtacc ttgtctggag aatgcagtga 1020 cagcactggc ccagcttgag aacccagegg ctgtgcagag ggcageegac cactatagec 1080 ageagatgge ccagcaactg aggeteecca cagacacget ecaggagetg etggacgtge 1140 atgcagcctg tgagagggaa gccattgcag tcttcatgga gcactccttc aaggatgaaa 1200 accatgaatt ccagaagaag cttgtggaca ccatagagaa aaagaaggga gactttgtgc 1260 tgcagaatga agaggcatct gccaaatatt gccaggctga gcttaagcgg ctttcagagc 1320 acctgacaga aagcattttg agaggaattt tetetgttee tggaggacae aatetetaet 1380 tagaagaaaa gaaacaggtt gagtgggact ataagctagt gcccagaaaa ggagttaagg 1440 caaacgaggt cctccagaac ttcctgcagt cacaggtggt tgtagaggaa tccatcctgc 1500 aagcagctga gaaggaacag gagctgctaa gagaaaaaca qaaggagcag cagcaaatga 1620 tggaggctca agagagaagc tttcaggaat acatggncca aatggagaag aagttggagg 1680 angaaaggga aaaccntntc agagagcctt gaaaaggttg ctaaaacaca agcttgaagg 1740 tncagaagaa aatgettaa 1759

```
<210> 497
      <211> 842
      <212> DNA
      <213> Homo Sapiens
      <400> 497
atgacaagca atatttaaat catatggacg aagtgccaga agaaaatctg gaaaggcatt
                                                                       60
teettatgea ateagacaac ttetgttett atatetteac ceatgeaaag aceaagacee
                                                                       120
tgagagaggg aatcattgtc actggaaagc ggctggggac tctggtggtg acttatgtag
                                                                      180
atgecateaa cagtggagea gtacettgte tggagaatge agtgacagea etggeecage
                                                                      240
ttgagaaccc agcggctgtg cagagggcag ccgaccacta tagccagcag atggcccagc
                                                                      300
aactgagget eeccacagac aegeteeagg agetgetgga egtgeatgea geetgtgaga
                                                                      360
gggaagccat tgcagtcttc atggagcact ccttcaagga tgaaaaccat gaattccaga
                                                                      420
agaagettgt ggacaccata gagaaaaaga agggagaett tgtgctgcag aatgaagagg
                                                                      480
catctgccaa atattgccag gctgagctta agcggctttc agagcacctg acagaaagca
                                                                      540
ttttgagagg aattttctct gttcctggag gacacaatct ctacttagaa gaaaagaaac
                                                                      600
aggttgagtg ggactataag ctagtgecca gaaaaggagt taaggcaaac gaggteetee
                                                                      660
agaactteet geagteacan gtggttgtag aggaateeat eetgeagtea gacaaageee
                                                                      720
tcactgctgg agagaaggcc atacaaccgg aaccgggcca tgaaggaagc acttgagaag
                                                                      780
gaacaggagc tgcttagaga aaaaccgaag gagccagcag ccaaatggat ggaggctcaa
                                                                      840
                                                                      842
      <210> 498
      <211> 707
      <212> DNA
      <213> Homo Sapiens
      <400> 498
gagcaataaa gctttttaat cacctgggtg caggctggct gagtccgaaa agacagtcag
                                                                       60
tgaagggaga tagggttggg accattttac aggatttggg ttggtaaagg aaaattacag
                                                                      120
tcaaaggggg ttgttctctg gcgggcagag gtgggtgtca caagttgctt agtgggggag
                                                                      180
cttttgagcc aggatgagcc aggagaagga atttcacaag gtaatgtcat cagttaaggc
                                                                      240
aggaacagge cattttcact tettttgtga ttetteaett getteaggee atetggaegt
                                                                      300
atgtacatgc aggtcacagg ggatatgatg gcttagcttq gqctcaqaqq cctqacattt
                                                                      360
agtatattta ctggaatatt caggetetta aatacgtgag ccaagatatt ttgtccctac
                                                                      420
tecaagtage ttggaageee caggtagagt qacaateatt atgttgctag ccatgtcaag
                                                                      480
gatetttaag ageettaaet giteatitti agigettea attitiett teagitgati
                                                                      540
aatotottta tttaactgot cagatttott ttgaaattot toottaagca tttottottg
                                                                      600
nacetteage ttggggttta acageettte atgetetetg aaaagggttt neettteetn
                                                                      660
cttcaacttc ttctccattt gggccatgna ttcctggaag cttctct
                                                                      707
      <210> 499
      <211> 772
      <212> DNA
      <213> Homo Sapiens
      <400> 499
gtggagcagt accttgtctg gagaatgcag tgacagcact ggcccagctt gagaacccag
                                                                       60
eggetgtgca gagggcagee gaccactata gecageagat ggeccageaa etgaggetee
                                                                      120
ccacagacac getecaggag etgetggacg tgeatgeage etgtgagagg gaagccattg
                                                                      180
cagtetteat ggageactee tteaaggatg aaaaccatga atteeagaag aagettgtqq
                                                                      240
acaccataga gaaaaagaag ggagactttg tgctgcagaa tgaagaggca tctgccaaat
                                                                      300
attgccaggc tgagcttaag cggctttcag agcacctgac agaaagcatt ttgagaggaa
                                                                      360
ttttctctgt tcctggagga cacaatctct acttagaaga aaagaaacag gttgagtggg
                                                                      420
```

actataagct agtgcccaga aaaggagtta aggcaaacga ggtcctccag aacttcctgc

```
agtcacaggt ggttgtagag gaatccatcc tgcagtcaga caaagccctc actgctggag
                                                                      540
agaaggccat agcagcggag cgggccatga aggaagcagc tgagaaggaa cagqaqctqc
                                                                      600
taagagaaaa acagaaggag cagcagcaaa tgatggaggc tcaagagaga aqctttcaqq
                                                                      660
aatacatggn ccaaatggag aagaagttgg aggangaaag ggaaaaccnt ntcagagagc
                                                                      720
cttqaaaaqq ttgctaaaac acaaqcttqa aqqtncaqaa qaaaatqctt aa
                                                                      772
      <210> 500
      <211> 787
      <212> DNA
      <213> Homo Sapiens
      <400> 500
ggctqttttt agttttttct tqatttcaaa tcttcttttc aacacctccc tcttctctat
                                                                       60
gegattgaac agttettget etetetett etetgteate tgtteeagac gggeeetgte
                                                                      120
tteeteatet eeeatgaggt etteteeata geeateatgg aactetteat ettetgagga
                                                                      180
agagtetgaa tetgaactgg aagaggaget gttgetqtea qaqtetqaca etteacette
                                                                      240
ctcaqqqqct qaqctctcaq ctqaactqtc tttqtctqaa ctqcctqaqq aqqcaqtttt
                                                                      300
gttggcctgt ttcttcatgg ttcctttctt ctctattttt ctggcttttc ctttctt
                                                                      360
attitititi tgccgaattc ggcacgagga actaticgag tittititit tittititi
                                                                      420
tgagacggag tetegeteeg tegeceagge tggagtgeag eggegegate tegaeteaet
                                                                      480
gcaageteeg ceteeeggge ecaegecatt eteeegeece ageeteeegt gtagetggga
                                                                      540
ctacaggege gtgccaccac qcccqqccaa tttttqcatt tttaqcanaq acqqqqtttc
                                                                      600
accgggttag ccaggaaggg ctcgatcccc tgacctcgng atccacccgt cttggcctcc
                                                                      660
caaagtgctg ggacccacag gcaatgagtt ggatttttaa ctactgggtt taaggccagg
                                                                      720
caggecccag geetgggttt tgggeetgge netggeetgn eeggeettqq qtttacette
                                                                      780
ctagaga
                                                                      787
      <210> 501
      <211> 886
      <212> DNA
      <213> Homo Sapiens
      <400> 501
agttntnacc gctcgnctcg cgcgcctgca ggtcgacact agtggatcca aagcgggatt
                                                                       60
ttaccctgga gctaaagtta gatggaaacc ccatcacaga agatgagtac ctggagaatg
                                                                      120
ccttgaagct gattccaqqc aagaatccca aaattcaaaa ttcaaacatg cctagagagt
                                                                      180
gtatcaggca tttcttccga aaacggaagt gctttgtctt tgaccggcct acaaatgaca
                                                                      240
agcaatattt aaatcatatg gacgaagtgc cagaagaaaa totggaaagg catttootta
                                                                      300
tgcaatcaga caacttctgt tettatatet teacecatge aaagaccaag accetgagag
                                                                      360
agggaatcat tgtcactgga aagcggctqq qqactctqqt qqtqacttat qtaqatgca
                                                                      420
tcaacagtgg agcagtacct tgtctggaga atgcagtgac agcactggcc cagcttgaga
                                                                      480
acccagegge tgtgcagagg gcagecgace actatageca gcagatggee caqcaactga
                                                                      540
ggetceccac agacacgetc caggagetge tggacgtgca tgcagcetqt qaqaqqaaq
                                                                      600
ccattgcagt cttcatggag cactccttca aqqatqaaaa ccatqaattc cagaagaagc
                                                                      660
ttgtggacac catagagaaa aagaagggag actttgtgct gcagaatgaa gaggcatctq
                                                                      720
ccaaatattg ccaggctgac ttaaqcqqct ttcaqaqcac ctgacaqaaa gcattttgag
                                                                      780
aggaattttc tctggtcctg gaggacacaa tctctactta gaagaaagga aacaqqntga
                                                                      840
gtggggacta ttagctagtg nccagaaaag gagttaaggc aaacqa
                                                                      886
```

<210> 502 <211> 626

CZII> 626

<212> DNA

<213> Homo Sapiens

<400> 502

```
gggagcaata aagcttttta atcacctggg ngcaggctgg ctgagtccna aaagacagtc
agngaaggga nanagggttg ggaccatttt acaggatttg ggttggtaaa qqaaaattac
                                                                      120
ngtcaaaggg ggttgttctn tggcgggcaa aggggggngt cacaagttgc ttannggggg
                                                                      180
ancttttgag ccaggatgan ccnggaaaag gaatttenca aggnaatgge atcagttaag
                                                                      240
gcaggaacag gccattttca cttnttttgg gantettcac ttgettcagg ccatntggaa
                                                                      300
nattcagget nttaaanacn ngageenana nattttggee etaetccaag tagettggaa
                                                                      360
nccccaggta aagggacnat cattatgntg ctagccntgt caaggatntt taaaagcctt
                                                                      420
aactggncat ttttanggct ttcaattttt tnttttagtn gattaancnc tttatttaac
                                                                      480
ngetcaaatt tettttgaaa ntntteetta agentttett ettgneettn anettgggnt
                                                                      540
ttancageet tteatgenet ttgaaaaggn ttteeettte eteeteeaac ttenteteea
                                                                      600
tttggggcca tgntattncc tgggaa
                                                                      626
     <210> 503
      <211> 884
      <212> DNA
      <213> Homo Sapiens
      <400> 503
cgaggatcca ggcgcaggag gacagagcaa tgggtgagag aactcttcac gctgcagtgc
                                                                       60
ccacaccagg ttatccagaa tctgaatcca tcatgatggc ccccatttgt ctagtggaaa
                                                                      120
accaggaaga gcagctgaca gtgaattcaa aggcattaga gattcttgac aagatttctc
                                                                      180
agcccgtggt ggtggtggcc attgtagggc tataccgcac aggaaaatcc tatctcatga
                                                                      240
ategrettge aggaaagege aatggettee etetgggete caeggtgeag tetgaaacta
                                                                      300
agggcatctg gatgtggtgt gtgccccacc tctctaagcc aaaccacacc ctggtccttc
                                                                      360
tggacaccga gggcctgggc gatgtagaaa agagtaaccc taagaatgac tcgtggatct
                                                                      420
ttgccctggc tgtgcttcta agcagcagct ttgtctataa cagcgtgagc accatcaacc
                                                                      480
accaggeeet ggageagetg cactatgtga etgagetage agagetaate agggeaaaat
                                                                      540
cctgccccag acctgatgaa gctgaggact ccagcgagtt tgcgagtttc tttccagact
                                                                      600
ttatttggac tgttcgggat tttaccctgg agctaaagtt agatggaaac cccatcacag
                                                                      660
aagatgagta cctggagaat gccttgaagc ttgantncag gcaagaatnc caaaantcaa
                                                                      720
aattcaaaca tgcctagaga gtgnattaag gcantttctt ccgaaaaccg gaagtgcttt
                                                                      780
tgeetttgae egggetacaa atggacaage caatatttaa aateattntg gacnaantge
                                                                      840
cngaagaaaa tetggaaagg cattteetta tgecatcaga caac
                                                                      884
     <210> 504
      <211> 612
      <212> DNA
      <213> Homo Sapiens
      <400> 504
gagacggagt ttcgctctgt cgcccaggct ggagtgcagt ggcgcgatct cgactcactg
                                                                       60
caageteege eteetgggtt caegecatte teetgeetea geeteeegtg tagetgggae
                                                                      120
tacaggcgcg tgccaccatg cccggctaat ttttgtattt ttagtagaga cggggtttca
                                                                      180
cogtgttage caggatggte tegateteet gacetegtga tecaceegte teggeeteee
                                                                      240
aaagtgetgg gattacagge aatgagttga tttttaacta etgggtttag gecaggeagg
                                                                      300
cocaggeoug gttttgggeo tggegetggg etgeetgtet ttggttttae tteettggtg
                                                                      360
ntttttctta aaacaggtac tgagtatcaa acaatataaa acaatataag aaggtctctc
                                                                      420
tottocotca attotagotg caagttttga goactagaca goagaaataa attootaaaa
                                                                      480
tgttgagttg agcaaatagt tcaatgctat ccctatcaaa ctaccaatga cattntttac
                                                                      540
nagaaattag aaactacttt aaaaatttca tatgggaacn aaaaaagagc cttacccnag
                                                                      600
genaanceta aa
```

<210> 505

<211> 2215

<212> DNA

<213> Homo Sapiens

<400> 505

ctcagatqct cactgcagtc caagagatct cccatctcat tgagccgctg gccaatgctg 60 cccgggctga agcctcccag ctgggacaca aggtgtccca gatggcgcag tactttgagc 120 egeteaccet ggetgeagtg ggtgetgeet ceaagaccet gagecacceq caqeaqatqq 180 cactcctgga ccagactaaa acattggcag agtctgccct gcagttgcta tacactgcca 240 aggaggctgg tggtaaccca aagcaagcag ctcacaccca ggaagccctg gaggaggctg 300 tgcagatgat gaccgaggcc gtagaggacc tgacaacaac cctcaacgag gcagccagtq 360 ctgctggggt cgtgggtggc atggtggact ccatcaccca ggccatcaac cagctaqatq 420 aaggaccaat gggtgaacca gaaggtteet tegtggatta ccaaacaact atggtgegga 480 cagccaaggc cattgcagtg actgttcagg agatggttac caagtcaaac accagccag 540 aggagetggg coetettget aaccagetga ceagtgacta tggcegtetg geeteggagg 600 ccaagcctgc agcggtggct gctgaaaatg aagagatagg ttcccatatc aaacaccggg 660 tacaggaget gggccatgge tgtgccgete tggtcaccaa ggcaggcqcc etqcaqtqca 720 gececagiga igectacace aagaaggage teatagagig igeceggaga gietetgaga 780 aggitetecea egiecigget gegetecagg eigggaateg iggeacecag geetgeatea 840 cagcagccag cgctgtgtct ggtatcattg ctgacctcga caccaccatc atgttcgcca 900 ctgctggcac gctcaatcgt gagggtactg aaactttcgc tgaccaccgg gagggcatcc 960 tgaagactgc gaaggtgctg gtggaggaca ccaaggtcct ggtgcaaaac qcaqctqqqa 1020 gccaggagaa gttggcgcag gctgcccagt cctccqtqqc qaccatcacc cqcctcqctq 1080 atgtggtcaa gctgggtgca gccagcctgg gagctgagga ccctgagacc caggtggtac 1140 taatcaacgc agtgaaagat gtagccaaag ccctgggaga cctcatcagt gcaacgaagg 1200 ctgcagctgg caaagttgga gatgaccctg ctgtgtggca gctaaagaac tctgccaagg 1260 tgatggtgac caatgtgaca tcattgctta agacagtaaa agccgtggaa gatgaggcca 1320 ccaaaggcac tcgggccctg gaggcaacca cagaacacat acggcaggag ctggcggttt 1380 totgttcccc agagccacct gccaagacct ctaccccaga agacttcatc cgaatgacca 1440 agggtatcac catggcaacc gccaaggccg ttgctgctgg caattcctgt cgccaggaag 1500 atgtcattgc cacagccaat ctgagccgcc gtgctattgc agatatgctt cgggcttgca 1560 aggaagcage ttaccaccca gaagtggeec etgatgtgeg gettegagee etgeactatg 1620 geogggagtg tgecaatggc tacetggaac tgetggacca tgtactgetg accetgeaga 1680 agccaagccc agaactgaag cagcagttga caggacattc aaagcgtgtg gctggttccg 1740 tcactgaget catccagget getgaageca tgaagggaac agaatgggta gacccagagg accecacagt cattgetgag aatgagetee tgggagetge ageegecatt gaggetgeag 1860 ccaaaaaagct agagcagctg aagccccggg ccaaacccaa ggaggcagat gagtccttga 1920 actitigagga geagatacta gaagetgeea aqtecattqe aqeaqeeace agtgeactgg 1980 taaaggetge gteggetgee agagagaact agtggeecaa gggaaagtgg gtgeeattee 2040 aagcaatgca ctggacgatg ggcagtggtc ccangggcct catttctgct gcccngatgg 2100 tggcttgcgg ccaccaacaa nttgtgtgaa ggcagccaat gcaactgtcc aagggcatgc 2160 caageengga anaactnatn ttattcagee caacaggtaa ettgeettte acaag 2215

<210> 506 <211> 742

<212> DNA <213> Homo Sapiens

<400> 506

ggcacgaggt aacccaaagc aagcagctca cacccaggaa gccctggagg aggctqtqca 60 gatgatgacc gaggccgtag aggacctgac aacaaccctc aacgaggcag ccagtgctgc 120 tggggtcgtg ggtggcatgg tggactccat cacccaggcc atcaaccagc tagatgaagg 180 accaatgggt gaaccagaag gttccttcgt ggattaccaa acaactatgg tgcggacagc 240 caaggccatt gcagtgaccg ttcaggagat ggttaccaag tcaaacacca gcccagagga 300 gctgggccct cttgctaacc agctgaccag tgactatggc cgtctggcct cqqaqqccaa 360 gcctgcagcg gtggctgctg aaaatgaaga gataggttcc catatcaaac accqqqtaca 420 ggagetggge catggetgtg cegetetggt caccaaggea ggegeeetge agtgeageee 480

cagtgatgcc tacaccaaga aggagctcat agagtgtgcc cggagagtct ctgagaaggt ctccaacgtc ctggctgcgc tecaggctgg gaatcgtggc acccaggcct gcatcacagc agccagcgct gtgtctggta tcattgctga cctcgacacc accatcatgt tcgccacttg ctggcacgct caatcgtgag ggtactgaaa ctttcgctga ccaccgggan ggcatnctga agactgcgaa ngtgctggtg ga	540 600 660 720 742
<210> 507 <211> 735 <212> DNA <213> Homo Sapiens	
<400> 507	
gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagccc	60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaaac ggtgaagaga gctgatgagg	120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc	180
agategaggt acageagegt taataatact ettggagegt taatactetg gggaggggca	240
ggcacttggg gggccctagg gcatgaaggc acttggggtt ggggagggga	300
actgegggac tgggegggge caggeeetgg ggtttggeag geactttggg gagtgetggg	360
gttgggcagg ttgggccccg acagcccaga aggctttggt agtggcacgc acagtctctg	420
ggccgggtct gcattaaata gaagaggctt ctttagtgct catctcgaag ctctgaaggc agaaacttgt actgctgctg ccggatctgg gccagtttct tccgngcctc ttccagctct	480
cgttccttcc gaagcatttc ttcctgngct gcgatgatct gggcaatgcc cgccaaccat	540 600
cttctcttta ccaccactgg cttnattctc ctgctcttca aaggctgcaa ccttctgggc	660
tgntttnacc agattatctg angctcgctt cactgngttg ncagcaacct tgaatccgtt	720
tcatttgccc tccag	735
<210> 508 <211> 666 <212> DNA <213> Homo Sapiens	
<400> 508	
gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc	60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg	120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc	180
agategaggt acageagegt taataataet ettggagegt taataetetg gggaggggea	240
ggcacttggg gggccctagg gcatgaaggc acttggggtt ggggagggga	300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgctggg	360
gttgggcagg ttgggccccg acagcccaga aggctttggt agtggcacgc acagtctntg ggccgggtct gcattaaata gaagaggctt ctttagtgct catctngaag ctctgaaggc	420
agaaacttgt actgctgctg ccggatctgg gccagttttc ttccgcgcct tttccagctc	480 540
togtteettt cogaageatt tetteetgng etgecatgat tetgggeeat gecogecaac	600
catcttetet tttacceanc attggettna tteteetget ettteaaaag gettgnagne	660
tttctg	666
<210> 509 <211> 818 <212> DNA <213> Homo Sapiens	
<400> 509	
ctcagatgct cactgcagtc caagagatct cecatctcat tgagecgetg gecaatgetg	
ccegggctga agecteceag ctgggacaca aggtgtecea gatggegeag taetttgage	60 120
egeteaccet ggetgeagtg ggtgetgeet ceaagaecet gageeaceeg cageagatgg	180

```
aggaggctgg tggtaaccca aagcaagcag ctcacaccca ggaagccctg gaggaggctg
                                                                    300
tgcagatgat gaccgaggcc gtagaggacc tgacaacaac cctcaacgag gcagccagtg
                                                                    360
ctgctggggt cgtgggtggc atggtggact ccatcaccca ggccatcaac cagctagatg
                                                                    420
aaggaccaat gggtgaacca gaaggtteet tegtggatta ccaaacaact atggtgegga
                                                                    480
cagecaagge cattgcagtg actgttcagg agatggttac caagtcaaac accagecag
                                                                    540
aggagetggg coctettget aaccagetga ceagtgacta tggeegtetg geeteggagg
                                                                    600
ccaagcctgc agcggtggct gctgaaaatg aagagatagg ttccatatca aacaccqqqt
                                                                    660
acaggagetg ggccatgget tgtgccgctc tggtcaccaa ngcangegec ctgantgcaa
                                                                    720
gcccagtgat gcctacccaa gaaggagctc atagagtgtg cccggagaag tttttgaaag
                                                                    780
gtettecacg tnetggttgg etteaagett gggaateg
                                                                    818
     <210> 510
     <211> 651
     <212> DNA
     <213> Homo Sapiens
      <400> 510
gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagcccc
                                                                     60
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg
                                                                    120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc
                                                                    180
agatcgaggt acagcagcgt taataatact cttggagcgt taatactctq qqqaqqqca
                                                                    240
300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgctggg
                                                                    360
gttgggcagg ttgggccccg acagcccana aggctttggt agtggcacgc acagtctctg
                                                                    420
ggccgggtct gcattaaata gaagaggctt ctttagtgct catctcgaag ctctgaaggc
                                                                    480
aanaaacttg tactgctgct geneggatet gggccanttt cttccgcgcc tcttccanct
                                                                    540
ctcgttcctt ccgaagcatt tcttcctggc tgccgatgat ctggncaatg ccgccaacca
                                                                    600
tottotottt caccaccact tggctcaatt cttcctqqct ctttcaaaqq c
                                                                    651
     <210> 511
     <211> 712
     <212> DNA
     <213> Homo Sapiens
     <400> 511
gtaggtagaa tcatttttat tggagcatga cctgtttggg gcttataact ctgcagccc
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg
                                                                    120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcagattc
                                                                    180
agatcgaggt acagcagccg ttaataatac tcttggagcg ttaatactct ggggaggggc
                                                                    240
aggcacttgg ggggccctag ggcatgaagg cacttggggt tggggagggg acaggggatg
                                                                    300
tactgcggga ctgggcgggg ccaggccctg gggtttggca ggcactttgg ggagtgctgg
                                                                    360
ggttgggcag gttgggcccc gacagcccag aaggetttgg tagtggcacg cacagtetet
                                                                    420
gggccgggtc tgcattaaat agaagaggct tctttagtgc tcatctcgaa gctctgaagg
                                                                    480
cagaaacttg tactgctgct gccggatctg ggccagtttc ttccgcgcct cttccagetc
                                                                    540
togttoctto cgaagcattt cttoctgtgc tgccgatgat ctgggcaatg cccggcaacc
                                                                    600
atottetett ttaccaccac tgggeteatt eteetgetet teaaaanget geageeettt
                                                                    660
tgggctgntt ttcaccagaa ttaatettga ngentegett tnacttgegt tg
                                                                    712
      <210> 512
      <211> 850
      <212> DNA
      <213> Homo Sapiens
      <400> 512
aggagetgge ggttttetgt teeccagage cacetgecaa gaeetetace ecagaagaet
                                                                     60
```

840

```
tcatccgaat gaccaagggt atcaccatgg caaccgccaa ggccqttgct gctggcaatt
                                                                     120
cctgtcgcca ggaagatgtc attgccacag ccaatctgag ccgccgtgct attgcagata
                                                                     180
tgcttcgggc ttgcaaggaa gcagcttacc acccagaagt ggcccctgat gtqcqqcttc
                                                                     240
gagccctgca ctatggccgg gagtgtgcca atggctacct ggaactqctq qaccatqtac
                                                                     300
tgctgaccct gcagaagcca agcccagaac tgaagcagca gttgacagga cattcaaagc
                                                                     360
gtgtggctgg ttccgtcact gagctcatcc aggctgctga agccatgaag ggaacagaat
                                                                     420
gggtagaccc agaggacccc acagtcattg ctgagaatga gctcctggga gctgcagccq
                                                                     480
ccattgaggc tgcagccaaa aagctagagc agctgaagcc ccgggccaaa cccaaggagg
                                                                     540
cagatgagte ettgaacttt gaggagcaga tactagaage tgccaaqtee attgcagcag
                                                                     600
ccaccagtgc actggtaaag gctgcgtcgg ctgccagaga gaactagtgg cccaagggaa
agtgggtgcc attccaagca atgcactgga cgatgggcag tggtcccang ggcctcattt
                                                                     720
ctgctgcccn gatggtggct tgcggccacc aacaanttgt gtgaaggcag ccaatgcaac
                                                                     780
tgtccaaggg catgccaagc cnggaanaac tnatnttatt cagcccaaca qqtaacttqc
                                                                     840
ctttcacaag
                                                                     850
     <210> 513
     <211> 727
     <212> DNA
     <213> Homo Sapiens
      <400> 513
gtaggtagaa toatttttat tggagcatga cotgtttggg gottataact otgoagcooc
tatgggtagc tgggggtggg ggaagatagt atcaaaaaac ggtgaagaga gctgatgagg
                                                                     120
ctgtggggac tggctggaag ctgctggcag ggtggagtgg gctggggccc cggcaqattc
                                                                     180
agatcgaggt acagcagcgt taataatact cttggagcgt taatactctg gggagggca
                                                                     240
300
actgcgggac tgggcggggc caggccctgg ggtttggcag gcactttggg gagtgctggg
                                                                     360
gttgggcagg ttgggccccg acagcccana aggctttggt agtggcacgc acagtctctg
                                                                     420
ggcccgggtc tgcattaaat agaagaggct tctttagtgc tcatctcgaa gctctgaagg
                                                                     480
cagaaacttg tactgctgct gccqgatctq qqccanqttt cttccqnqcc tcttccaqct
                                                                     540
totogttoot toogaaagca tttottnotg tgottgenat gaatentggg caatgeeegn
                                                                     600
ccaacccatc ttctctttca ccaccactgg tctnatttct cctnngtcnt tcaaaaggct
                                                                     660
tgcaagcctt ctgggctggc ctttcaccca ganttaattt naagnetege tttacttqqq
                                                                     720
tttqcca
                                                                     727
      <210> 514
      <211> 877
      <212> DNA
      <213> Homo Sapiens
      <400> 514
cagcagccag cgctgtgtct ggtatcattg ctgacctcga caccaccatc atgttcgcca
                                                                      60
ctgctggcac gctcaatcgt gagggtactg aaactttcgc tgaccaccgg gagggcatcc
                                                                     120
tgaagactgc gaaggtgctg gtggaggaca ccaaggtcct ggtgcaaaac gcaqctqqqa
                                                                     180
gccaggagaa gttggcgcag gctgcccagt cctccgtggc gaccatcacc cgcctcgctg
                                                                     240
atgtggtcaa gctgggtgca gccagcctgg gagctqaqqa ccctqaqacc caqqtqqtac
                                                                     300
taatcaacgc agtgaaagat gtagccaaaq ccctqqqaqa cctcatcaqt qcaacgaagg
                                                                     360
ctgcagctgg caaagttgga gatgaccctg ctgtgtggca gctaaagaac tctgccaagg
                                                                     420
tgatggtgac caatgtgaca tcattgctta agacagtaaa agccqtqqaa gatqaqqcca
                                                                     480
ccaaaggcac tegggeeetg gaggeaacca cagaacacat aeggeaggag etggeggttt
                                                                     540
tetgtteece agagecacet gecaagaeet etaececaga agaetteate egaatgacea
                                                                     600
agggtatcac catggcaacc gccaagccgt tgctgctgca attcctgtcg ccaggaagat
                                                                     660
gtcattgcca cagccaatct gagcccgccg tgctattgca gatatgcttc ggctttgcaa
                                                                     720
ggaagcaget taccacccag aagtgggeee tgatgtgegg nttcaancet qnactatgge
                                                                     780
```

ccggagtgtg ccaatggcta cctgggaact ggttggacca ttgtacttgg tgaccettge

aaaagcccag ccccag	aact	tgaagccagc	agtttgc			877
<210> 515						
<211> 685						
<212> DNA						
<213> Homo	Sapie	ens				
<400> 515						
gtaggtagaa tcattt	ttat	tggagcatga	cctgtttggg	gcttataact	ctgcagcccc	60
tatgggtagc tggggg						120
ctgtggggac tggctg	gaag	ctgctggcag	ggtggagtgg	gctggggccc	cggcagattc	180
agatcgaggt acagca						240
ggcacttggg gggccc						300
actgcgggac tgggcg						360
gttgggcagg ttgggc						420
ggccgggtct gcatta cagaaacttt gtactg						480 540
tntcgttcct ttccga	ancc	atttctttcc	tangettace	natonatott	gggggaaatgg	600
ccgccaaccc atcttc	tctt	ttcaccccac	cacctgggc	catteteete	gggcaaacgc	660
ngcttgcaac cctttc			cacceggnee	caccccccg	CCCCCaaaa	685
-						
<210> 516						
<211> 790 <212> DNA						
<212> DNA <213> Homo	Cond					
<213> HOIIIO	Sapr	2118				
<400> 516						
ggttaacata cgaaga	aaga	atggctcgtc	gactgctagg	tgctgacagt	gcaactgtct	60
ttaatattca ggagce	agaa	gaggaaacag	ctaatcagga	atacaaagtc	tccagctgtg	120
aacagagact catcag						180
gtgatgaagt tcagta						240
tgaagctgaa acatta						300
ctggaaatcc aaagcc						360
gtgatcacta caccat	tcaa	agagateteg	atgggacctg	ctccctccat	accacageet	420
ccaccctaga tgatga	teggg	aattatacaa	ttatggctgc	aaaccctcag	ggccgcatca	480
gttgtactgg acggct						540
atgaaccaat tcagga						600
ctgttcaaga aggaaa	acto	tacagaataa	actacasaat	geaggettet	ggagatetga	660 720
gatctaagct ggcaac	taga	tagaaaaccc	atacacceta	acagtggtta	Caaccccca	780
tggtgcctga		-355	3-403-0003	4943930004	daagaaagee	790
						,,,,
<210> 517						
<211> 747						
<212> DNA						
<213> Homo	sapi	ens				
<400> 517						
atagtcaaag gtatgt	ttct	gccttttaca	tantgtgaca	aaggaatatq	ttggtcaagg	60
caatggctgt ttcagt	gttt	cagetttaae	aagaatgctg	gattacaggt	cctcactttc	120
taccaaggca gtatto	agtg	tcaggtgaga	tgggttggcc	tcaggttgga	acgctgcttt	180
gatgtctagt ccctgg	jtccg	aaagtgctgc	atagcgactg	gctgagggcc	gtacttttt	240
tggcttggtg ctctgt	gact	gctgatgcca	ctgggtgtaa	acgtccagcc	tggcagtaca	300
ggacacaatc cctgct	tcat	tettggetga	cacagtatac	cacccagcat	cttcttttgt	360
ggctccctga atgago	cagge	agatgtagcc	gtggttgtcc	tggtgcatgc	tcactcggtc	420

```
agtgctgtga gtgagtgatt cattttettt ettecaaaat atetgaggtg gtggcactee
caatacacga cattccagcc gcactgggta cccatcagca actcctgtgt tttggagctt
                                                                       540
ctcaataaac acagggggtt tgtgtgcttc tttagcagca accacaagct ccaggctgaa
                                                                      600
tgagttetgt cetgeteggt tggtagetat acatqtqtaq atqeeqqcat cacqtgacqt
                                                                      660
gactggctct atgatcagag agtgcacccc gttctttacg caccagcatc ttgggagccc
                                                                      720
tgtcaaggcg taccggcttt ccatcta
                                                                      747
      <210> 518
      <211> 926
      <212> DNA
      <213> Homo Sapiens
      <400> 518
agaaagcaga gccttctgaa gttgacatga attctcctaa atccaaaaag qcaaaaaaga
                                                                       60
aagaggagcc atctcaaaat gacatttctc ctaaaaccaa aagtttgaga aagaaaaagg
                                                                      120
agcccattga aaagaaagtg gtttcttcta aaaccaaaaa agtgacaaaa aatgaggagc
                                                                      180
cttctgagga agaaatagat gctcctaaqc ccaaqaaqat qaaqaaaqaa aaggaaatga
                                                                      240
atggagaaac tagagagaaa agccccaaac tgaagaatgg atttcctcat cctgaaccgg
                                                                      300
actgtaaccc cagtgaagct gccagtgaag aaagtaacag tgagatagag caggaaatac
                                                                      360
ctgtggaaca aaaagaaggc gctttctcta attttcccat atctgaagaa actattaaac
                                                                      420
ttctcaaagg ccgaggagtg accttcctat ttcctataca agcaaagaca ttccatcatg
                                                                      480
tttacagcgg gaaggactta attgcacagg cacggacagg aactgggaag acattctcct
                                                                      540
ttgccatccc tttgattgag aaacttcatg gggaactgca agacaggaag agaggccqtg
                                                                      600
cccctcaggt actggttctt gcacctacaa gagagttggc aaatcaagta agcaaagact
                                                                      660
tcagtgacat cacaaaaaaa gcttgtcagt gggcttggtt tttatggtgg aacttcctat
                                                                      720
ggaggtcaat ttggaccgca tggangnaat gggaattgga taatcctggg ttggaacacc
                                                                      780
angtogtato aaaggacono antaonggaa tgggcaaact aagatottoa cocaaacttt
                                                                      840
aagccatgtt ggcccttggg atgaaagtgg ggncccagan tgtttgggaa atngggaatt
                                                                      900
tgcttgatca aagtggggaa gaagaa
                                                                      926
     <210> 519
      <211> 789
      <212> DNA
      <213> Homo Sapiens
      <400> 519
acatactett gageaatget aatetgegee cettacteee ttaagteett ettggtaaat
                                                                       60
aatgttaatc ttccaatagg aagaagtgga gtacattacc atttaagcac catttatcca
                                                                      120
gcctacttac aaataaagct atggagccac cttatacatg tgaaattcct taaaaccctg
                                                                      180
getttetatt aaaatgtact tttatatata etatetatga agaatteaet aaageatgaa
                                                                       240
tcaccttata atgagaaget aaaaatgtat caaaacgaac ataagtatag gtaatccaca
                                                                      300
tcaaacatac tacatcttcc aagtctagag catacactgg tataaactgt attacaaccc
                                                                      360
agattagttt gaaatcttgt ttcaaaacat tgctcagtat taagtctcag tagacaaata
                                                                      420
ataggaccac atgagaaact gttcggcagg tggctgagga aaccttaact tccaaaggct
                                                                       480
caaagtggtc ctccagagac tgttacactc ccttaggtat ttatttcagg gaaggacact
                                                                      540
attaaqqqac acttttgagt ataaagacag gtgaactcac aaagtatagg cagatcatqc
                                                                      600
ttgattttat cttctaatct acaggataat acattagaat aaaaatgtaa tgaattcata
                                                                      660
cacctttcaa aanggaaaaa ctggatgaag taacnnntaa agntataaat ggataatgga
                                                                      720
tccggatgaa aataaatttt aaaatggaaa ccttggctgn gtctgaaaga agaccgggac
                                                                      780
tttqqcaaq
                                                                      789
      <210> 520
```

<210> 520 <211> 827

<212> DNA

<213> Homo Sapiens

```
<400> 520
gtgatatagt gcttgtcatt ttaattgtaa catattacca aaaagcttta tatacatagc
tttatactat ttacattqca qtaqaqqaat qqcaatqcta acaqqtqatc aqtqcttcca
                                                                    120
aactttttca atacctacac atgggagatc taaagagtac aatatattta agacttctaa
                                                                    180
ggaattgttt teteeteact aataaageat geeetgacta aagagaagte etgtaggeac
                                                                    240
agecttatet atteaatgae tggeacetee caggggtaet gacacacaaa gtgeetteae
                                                                    300
360
eggeeteget tgacceteag geeetetetg gggetgteag teggaettet eteaggaaga
                                                                    420
ttattgactg ggacggattt cgtggtgggt teteggagga tggtgeetga atetactqqq
                                                                    480
ctccgctgag caactttgac cttttgtgat ctgctqccac cagctqttqq tttqqaqqac
                                                                    540
totgcaaqat tttctttqcc qagactcaqt qqqqataqcq ctaacttctq tqcaqccaqq
                                                                    600
egggggetgg tecgagttge catggttggt etteggagga tatatggget aagtettine
                                                                    660
tgtcgggatg tcagcaaacc ctttctttac aacttctgga agtccctctg gctcaaactt
                                                                    720
agtacetteg ngnettetge anggtgaata ceaeteatga etgntttett gettttttta
                                                                    780
gaaaagetet etggggtaac aggtgtgggn cettcaccat tettece
                                                                    827
     <210> 521
     <211> 710
     <212> DNA
     <213> Homo Sapiens
     <400> 521
gtgatatagt gcttgtcatt ttaattgtaa catattacca aaaagcttta tatacatagc
                                                                     60
tttatactat ttacattgca gtagaggaat ggcaatgcta acaggtgatc agtgcttcca
                                                                    120
aactttttca atacctacac atqqqaqatc taaaqaqtac aatatattta aqacttctaa
                                                                    180
ggaattgttt teteeteact aataaageat geeetgaeta aagagaagte etgtaggeae
                                                                    240
agocttatot attoaatgac tggcacctcc caggggtact gacacacaaa gtgccttcac
                                                                    300
tggaccttac agtteteact gecettggac tecagtecag etttgggget ggggacaagt
                                                                    360
eggeeteget tgacecteag geeetetetg gggetgteag teggaettet etcaqqaaqa
                                                                    420
ttattgactg ggacggattt cgtggtgggt tctcggagga tggtgcctga atctactggg
                                                                    480
ctccgctgag caactttgac cttttgtgat ctgctqccac cagctqttqq tttqqaqqac
                                                                    540
tetgcaagat tttetttgee gagacteagt ggggatageg etaaettetg tgeageeagg
                                                                    600
egggggetgg tecquagttq ceatqqqttq ntettecaqq atatatqqqe taaqnettte
                                                                    660
ctgtcgggat gtcagcaaaa ccctttcttt acaacttctg gaaagcccct
                                                                    710
      <210> 522
      <211> 638
      <212> DNA
      <213> Homo Sapiens
      <400> 522
atagngcttg tcattttaat tgtaacatat taccaaaaag ctttatatac atagctttat
                                                                     60
actatttaca ttgcagtaga ggaatggcaa tgctaacagg tgatcagtgc ttccaaactt
                                                                     120
tttcaatacc tacacatggg agatctaaag agtacaatat atttaagact tctaaggaat
                                                                     180
tgttttctcc tcactaataa agcatgeeet gactaaagag aagteetgta ggcacageet
                                                                     240
tatetattea atgactggea ceteceaggg gtactgaeae acaaagngee tteaetggae
                                                                     300
cttacagttc tcactgccct tggactccag tccagctttq gggctqqgga caaqtcqqcc
                                                                     360
tegettgace etnaggeeet etetgggget gteagtegga ettetnteag gaagattatt
                                                                     420
gactgggacg gatttcgtgg tgggttctcg gaggatggtg cctgaatcta ctgggctccg
                                                                     480
ctgagcaact ttgacctttt qnqatctqct qccaccaqct qttqqtttqq aqqactntqc
                                                                     540
aagattttet ttgeegagae ttantggggg atagegetaa ettetggnge agecangegg
                                                                     600
gggctggtcc naanttgcca tggntgntct tencagga
                                                                     638
```

<210> 523

<211> 833

<212> DNA <213> Homo Sapiens

<400> 523

```
cgacacttag accgagtgga ctccatcctg ctcacccaca ttggggatga caatttgeet
                                                                       60
ggaataaaca gcatgttaca qcqqaaaatt qcaqaqctcq aqqaaqaaca qtcccaqqqc
                                                                      120
tecaccacaa atagtgactg gatgaaaaac etcateteee etgacttagg agttgtattt
                                                                      180
ctcaatgtac ctgaaaatct caaaaatcca gagccaaaca tcaagatgaa gagaagcata
                                                                      240
gaagaageet getteactet eeagtaceta aacaaattgt ceatqaaace agaacetetg
                                                                      300
tttagaagtg taggcaatac tattqatcct qtcattcttt tccaaaaaat qqqaqtaggt
                                                                      360
aaacttgaga tgtatgtgct taatccagtc aagagcagca aggaaatgca gtattttatg
                                                                     420
cagcagtgga ctggtaccaa caaagacaag gctgaattca ttctgcctaa tqqtcaaqaa
                                                                     480
gtagatetee egattteeta ettaaettea gteteatett tgattgtgtg geateeagea
                                                                      540
aaccctgcgg agaaaatcat ccqaqtcctq tttcctqqqa acaqcacca qtacaacatc
                                                                      600
ctggaagggt tggaaaagct caaacatcta gactttctga agcagccact ggccacccaa
                                                                      660
aaggatetea etggeeaggt geecaeteet gtggtgaaac aaacaaaact gaacagaggg
                                                                     720
cttgatagec gagaaagtet gaageecage egcaaaanca etttetagea aaateeggeg
                                                                      780
ccaaggagtc aaaagaagaa acccctgagg tcacaaaagg tggaatcacg tgg
                                                                      833
```

<210> 524 <211> 766

<211> 766 <212> DNA

<213> Homo Sapiens

<400> 524

```
cactteette ttetetteet tettaaette ettettgaet teetttggeg gtgtttettt
                                                                       60
cttaacctct ttcttgggtt cttttttctc ttcttcttg atctctttt tgacttcttt
                                                                      120
tttcacctct teettttttg gtttttcctc ettettgata ggtgttttgt ceteettttt
                                                                      180
agccacttct ttctttggct tttctttctc ctctttcttq tcttcaqqct ttacctttqt
                                                                      240
tteettttte acceptettet cettqqcaqe tttqqqtttq acatetqtqq ettqettete
                                                                      300
agecaccteg gettteactg gagatggete ttetttgetg ggaaccteet ttteagteac
                                                                      360
tgaaggtttg gtctctgttt ttattggctt gtctttttc accattacct tttctttgct
                                                                      420
ttcaactttg ggtggctttt ccacgtgatt cacttttgtg acctcagggg tttcttcttt
                                                                      480
tgactccttg cgcacggatt tgctaggaag tggttttgcg gctggcttca gactttctcq
                                                                      540
getateagee etetgtttea gttttgtttg tttcaccaca ggagtgggea eetggeeagt
                                                                      600
gagancettt tgggtggcca gtggctggtt caqaaagtct aaanggtttg aggettttne
                                                                      660
aacctttcag gaatggtgga ccggggtgct qqtcccaqqa aacaqqactc qqatqqattt
                                                                      720
ttctccccaa gggtttgctg gaagccccca caaatcaaag gaagga
                                                                      766
```

<210> 525

<211> 847

<212> DNA

<213> Homo Sapiens

<400> 525

```
cagcagoogg caggatggog accgtggtgg tggaagccac cgagccggag ccgtccggca
                                                                       60
gcatcgccaa cccggcggcg tccacctcgc ctagcctgtc gcaccgcttc cttgacagca
                                                                      120
agttctactt getggtggtc gtcggcgaga tcgtgaccga ggagcacctg cggcgtgcca
                                                                      180
teggeaacat egagetegga ateegateat gggacacaaa cetgattgaa tgcaacttgg
                                                                      240
accaagaact caaacttttt gtatctcgac actctgcaag attctctcct gaagtcccag
gacaaaagat ccttcatcac cgaagtgacg ttttagaaac agtggtcctg atcaaccctt
                                                                      360
ctgatgaagc agtcagcacc gaggtgcgct taatgatcac tgatgctgcc cgacacaagc
                                                                     420
tgctcgtgct gaccgggcag tgctttgaaa ataccggaga gctcattctc cagtccqqct
                                                                     480
ctttctcctt ccagaacttc atagagattt tcaccgatca agagatcggg gagttactaa
                                                                      540
gcaccaccca tectgecaac aaagccaget taaccetgtt etgteetgaa gaaggggaet
                                                                      600
```

ggaagaacte caatettgae agacacaate tecaagactt cateaatatt aaacteaatt 66 cagettetat ettgecagaa atggaaggae tttetgagtt tacegagtat eteteagaat 72 caagtggaag teccatetee ttttgacate ttgggaacet tecacategg gtggatttet 78 gaagettet caagecetgt ggtataattt ttecaggang gaagggccaa ttttgeettg 84 gttgcaa 84	0
<210> 526	
<211> 746	
<212> DNA	
<213> Homo Sapiens	
<400> 526	
cttgatctct tttttgactt cttttttcac ctcttccttt tttggttttt cctccttctt 6	0
gataggtgtt ttgtcctcct ttttagccac ttctttcttt ggcttttctt tctcctcttt 12	0
ettgtettea ggetttaeet ttgttteett ttteacegte tteteettgg eagetttggg 18	0
tttgacatet gtggettget teteagecae eteggettte actggagatg getettettt 24	0
getgggaace teetttteag teactgaagg ttttggtetet gttttattgg ettgtettt 30	0
tteaccatta cettttettt gettteaact ttgggtgget tttecaegtg atteactttt 36	0
gtgacctcag gggtttette ttttgactce ttgegcaegg atttgctagg aagtggtttt 42	0
geggetgget teagactite teggetatea geeetetgtt teagtitigt tigtiteace 48	0
acaggagtgg gcacctggcc agtgagatcc ttttgggtgg ccagtggctg cttcagaaag 54	0
totagatgtt tgagetttte eaaceettee aggatgttgt actgggtget gtteecagga 60	0
aacaggactc ggatgatttt ctcccgcagg gtttgctgga agccacacaa tcaaagatga 66	0
gaactgaaag taaagtangg aaatcgggaa gaactacttc ttggaccatt taggcagaaa 72	0
ggaattcagc cettggcttt ggtggg 74	6
<210> 527	
<211> 837	
<212> DNA	
<213> Homo Sapiens	
<400> 527	
	0
cttaacctct ttcttgggtt cttttttctc ttcttcttg atctcttttt tgacttcttt 12	
tttcacctct tccttttttg gtttttcctc cttcttgata ggtgttttgt cctccttttt 18 agccacttct ttctttggct tttctttctc ctctttcttg tcttcaggct ttacctttqt 24	
ttcctttttc accgtcttct ccttggcagc tttgggtttg acatctgtgg cttgcttctc 30 agccacctcg gctttcactg gagatggctc ttctttgctg ggaacctcct tttcagtcac 36	
tgaaggtttg gtototgttt ttattggctt gtottttttc accattacet tttctttgct 42	
ttcaactttg ggtggctttt ccacgtgatt cacttttgtg acctcagggg tttcttcttt 48	
tgactcottg cgcacggatt tgctaggaag tggttttgcg gctggcttca gactttctcg 54	
gctatcagcc ctctgtttca agttttgttt gnttcaccac aggagtgggc acctggccag 60	
tgagaccttt tgggtggcca agtggctgct tcagaaaagt ctagaaggtt tgagcctttt 666	
ccaaccette caggaaggtt gggacetggg tgetggttee canggaaace aggacetegg 72	
gatgaatttt ctcccgcaag ggtttgcctg gaatgccccn acaatccaaa gaatgaaanc 78	
tgaaagttta antagggaaa atccgggaga aactaccttc ntggaccatt naggccc 83	
<210> 528	
<211> 822	
<212> DNA	
<213> Homo Sapiens	
<400> 528	
	0

ctcgggacgt gaaattgaca gtgaaaagta tggcagatga gcaagaaatc atgtgcaaat tggaaagcat taaagagatc aggaacaaga ccctgcagat ggagaagatc aaggctcgtt

120

```
tgaaggetqa gtttqaggea ettqaqteaq aqqaaaqqea eetqaaggaa tacaageagg
                                                                      180
agatggacct tetgetacag gagaagatgg cecatgtgga ggaacteega etgatecaeg
                                                                      240
ctgacatcaa tgtgatggaa aacactatca aacaatctga gaatgaccta aacaagctgc
                                                                      300
tagagtctac aaggaggctg catgatgagt ataagccact gaaagaacat qtqqatqccc
                                                                      360
tgcgcatgac tctgggcctg cagaggctcc ctgacttgtg tgaagaagag gagaagcttt
                                                                      420
ccttggatta ctttgagaag cagaaagcag aatggcagac agaacctcag gagcccccca
                                                                      480
teectgagte cetggeeget geageeeget geegeeeaac ageteeaagt ggetaggaag
                                                                      540
caggatactc ggcagacggc caccttcagg cagcagcccc cacctatgaa ggcctgcttg
                                                                      600
teatgteace ageaaattea ceggaatgea cetatatgee etetttgeaa ggccaagagt
                                                                      660
cggtcccgga accccaaaaa gccgaacgga agcaggatga ataaaggaaa gggagagccc
                                                                      720
atgaagettt getaattata acceetteae ettgaceaga gteattgatg teetgatgtg
                                                                      780
aaacaaccct tggcccaacc ccacgaagtc tcctatttaa tg
                                                                      822
      <210> 529
      <211> 842
      <212> DNA
      <213> Homo Sapiens
      <400> 529
actttcaaag agcagaggaa cattttatat agtgaacaca tacacacttg gcaatgtaaa
                                                                       60
actacttaag gaaggaaaaa tatccccctc cccagccagg tactgagacc tqqqqctaaa
                                                                      120
attittigte agteagecee catececate cettatette gagtgacett accaggaaac
                                                                      180
ctggctttgg tggaaaggag agctgtgggg cttggggagc ctgatgcctt ttcttttggg
                                                                      240
aggaaaggca cctgcacaat ccacaggaca ggagtggcca gcagctatcc tgagctqaqq
                                                                      300
ctccagaaga gttcagatcc aagagagcaa gggatgaatg gaaggaaagt cccacccacc
                                                                      360
ttcatgtgta aagtgattgg catttactca aatctaaatc tactcctctc ctccctqcaa
                                                                      420
tataccattg agcatgtgcc agagtaatgg ttctgaacaa aagccaacac agatgtcagc
                                                                      480
ctgggggcac tctcagccaa ggaagcccct acagccgagc cctcagccct aatgacttag
                                                                      540
gcagtaggtt aggcaggaga tgtagaagtt ggtctggctc actgatttca ctgtggaaat
cttctactag aatttgcaaa gactagatat tggggaaagg ttcattgatc ttaagaatcc
                                                                      660
caagacacac agcctagtac ctaagaattt taagtatatg tggggagaca gaagtgggag
                                                                      720
aaagctaaag aattaccggc catgccttcc aaatgattat gaaaanggag ggcttqqtcc
                                                                      780
aagcttacct ttgggccttt aaggatgaan atgangggta ggaagtangg gggatacatg
                                                                      840
                                                                      842
      <210> 530
      <211> 815
      <212> DNA
      <213> Homo Sapiens
      <400> 530
ggaaaaqqga gaaagatagg gagaaatatt cccaaagaga acaagaaaga gatagacaac
                                                                       60
aaaatgatca gaaccgaccc agtgagaaag gagagaagga agagaaaagc aaagcaaagg
                                                                      120
aagagcatat gaaagtaagg aaggaaagat atgaaaataa tgataaatac aqagatagag
                                                                      180
aaaaacgaga ggtaggtgtt cagtcttcag aaagaaatca agacagaaag gaaagcagcc
                                                                      240
caaattctag ggcaaaggat aaatttcttg accaaqaaaq atccaacaaa atqaqaaaca
                                                                      300
tggcaaagga caaagaaaga aaccaagaga aaccctctaa ttctgaatca tcactgggaq
                                                                      360
caaaacacag actcacagag gaagggcaag agaagggtaa agaacaagag agaccacctg
                                                                      420
aggcagtgag caagtttgca aagcggaaca atgaagaaac tgtaatgtca gctagagaca
                                                                      480
ggtacttggc caggcagatg gcgcgggtta atgcaaagac ctatattgaq aaaqaaqatg
                                                                      540
attgatggct accccaagag aaagatttaa ggaagcacag aaaactgtaa ttcctggaac
                                                                      600
ctgctgcgta aaaccataaa ggagtgtgtt acccagtagt ttggagggca tttttaaatt
                                                                      660
tattttcaaa attttaagtt aaaagtcagt cttaagcttg gatgttttgg aatgtggatg
```

tttggctgaa tttatatata gggngtactc atcaataccn cattctttgt gganttcaag

aaccegttaa gagtgtgctt aatteeetga ngtae

720

780

815

```
<210> 531
      <211> 857
      <212> DNA
      <213> Homo Sapiens
      <400> 531
aaaatgtata agcatatcat tttattttca tttaagccaa ctatgctgta agctatttag
                                                                       60
acaagatgat tcacatttta tacttaaata caaatttcag aacataaagt atattttctg
                                                                      120
tttttcaaat ccatatttta tctgaaatac atttcctqca acaaaacatt attagaagag
                                                                      180
ttaaattatt tatttaaaaa aaattttta gagacagggt ctcattctgt tgcccaggtt
                                                                      240
ggagtgcagt ggcatgatca tacctcactg taacatcaaa ttcctaggct caaqtqatct
                                                                      300
tettgeetea geetettgaa eagetgggae taeaggeatg gaetaeeatg etaggetttt
                                                                      360
tgttttttaa atagagacaa ggtcttatta tcctgcctag gctggtcttg aatgcctagc
                                                                      420
ctcaatatcc ttctgccttg gcctcccaaa atgttggtat tacaggcacg agctaccgta
                                                                      480
tctggccaaa attattttt aatggttgta gtggagcaaa ttttcctcat tatgtaccta
                                                                      540
cagggaatta gcacactctt aacggttctt gaatcaacaa aqaatqtqqt attqatqaqt
                                                                      600
acacactata tataaattca qccaaacatc cacatccaaa catccaaqct qtaaqactga
                                                                      660
cttttaactt aaaattttga aaataaattt aaaaagccct tcaaactact ggtaacacac
                                                                      720
ttenttatgg tttaccccac aggntncagg aattecagtt tetgggettn cettaaacet
                                                                      780
ttccttgggg tagcccatca atcatctctt tctcaaaaaa aggentttgc attaacccgg
                                                                      840
gccatttggc ctggcca
                                                                      857
      <210> 532
      <211> 736
      <212> DNA
      <213> Homo Sapiens
      <400> 532
cotggatget gtgctgattg aggatgaget ggaggaacte cacegetact gccaggaggt
                                                                       60
gtttggaagg gtctcccggt tccaccggcg gctcacctcc tgcactccgg gcttggaaga
                                                                      120
tgaaaaggag gcctctgaga atgaaacaga catggaagac cccagagaaa tccagactga
                                                                      180
ttottggcgt aaacggggag agagcgagga accgtcatct cctcaqtccc tqtqtcatct
                                                                      240
agtggcccca gggcacgagc ggtctggctg cgagacccct qtcaqcqtqq actccatccc
                                                                      300
cctggagtgg gaccacacag gcgacqtqqq qqqctcctcc tctcacqaaq aqqacqaqqa
                                                                      360
gggcccatac tacagcgcac tgtcagatqt aqaaatccct qaaaatcctq aqqcatatct
                                                                      420
taaaatgacc acaaaaactt tgaaagcgtc ttctggtaaa tccatttcgg atggccactc
                                                                      480
gtggcatgtt cccgacagcc cttcctgtcc cgagcatcac tacaagcaaa tggaaggtga
                                                                      540
caggaatgtt ccacctgttc cccctgcgtc cagcacccct tataaaccac cctatggaaa
                                                                      600
getactatta cetecaggea eggatggtgg caaaqaaage ceqeqaqtee tqaatqqcaa
                                                                      660
cccacagcag gaagacnggg gactggcccq qtattacaqa qcaacaqtca qqqtqccttc
                                                                      720
gacagatggg agatga
                                                                      736
      <210> 533
      <211> 678
      <212> DNA
      <213> Homo Sapiens
      <400> 533
ctggctaatt ttgtttttta atganaaaca tntgagttgt ncatatcaca aacagnttca
                                                                       60
agtttntgnn ccaaccccc gccccaccc ccgccgnggc caaacagtta aaacccaaag
                                                                       120
caaagcatca ntttggatgt gaaaaagtnt taaaaaaatta acttacaaaa ncatccctat
                                                                      180
caagtoggta gttnggcatt tactttacat tagtcaaaag ctccagctaa aatctaattt
                                                                      240
ttttaaaaaa aaatcgaagt ttacattatt catacanatt gggcattgtt aaaaaatatg
                                                                      300
cncaaataac cacatccatg caatacaatt tntttaaaaa tttaaagcan tntaaaagag
                                                                       360
```

420

cagagetagg tnetgaacan aacattttgg ngtataaccg geagnteaaa attgecaget

gattggagta aaactgattn taa	gcgtatt aaatatgatn	gatngtttcc	atcagctaag	480
ggngcctatg agtttctgaa cca	tttntag ggnggaatgt	cctcgcttgc	ttcnataata	540
tatgtgatgg acaccactgc tca	ttgncca tacctacatt	ataataatgc	tgttttacaa	600
acaaaccaga attcacaaag ngc	ttggctn ttcaggaaac	tgacatttcc	agagatccct	660
aaactaaatc aactagtt				678
<210> 534				
<211> 789				
<212> DNA				
<213> Homo Sapiens				
_				
<400> 534				
ggtggatgag ggtgctgggg aca	gtgctgc ggtggccagt	ggtggtgccc	agaccttggc	60
ccttgccggg tcccctgccc cat				120
tgaggaggac acagaaggtc gaa				180
gaccccaggc cccagcccag cag				240
gaccccaggc ccccgcccag cag				300
gaccccaggc ccccgcccgg cag	gacetge aggggaegag	ccadccdada	gcccatcgga	360
gaccccaggc cccagcccgg cag				420
gaccccaggc ccccgcccgg cag				480
gacccaggc ccccgcccgg cag				540
gaccccaggc cccagcccgg cag				600
agcagagttg caggacgcag agg				660
aaggagttgc ccgtcggcgt ctt				720
gactintign ggcttccctt aag				780
gggettett	geeegge eegegaeeee	gaccacggan	ccacaatget	
gggccccc				789
<210> 535				
<211> 802				
<211> 302 <212> DNA				
<213> Homo Sapiens				
(213) NOMO Bapiens				
<400> 535				
caaagtcaaa tgaatttatt cag	aaaaggc cttgcttggt	atcadactaa	gaaaaggagg	60
cctgccgcc gcccccact cca				120
gctgggtggg gaagacacag cca				180
ggcctcgcgg cttctggtgg ctc				240
tgggtcacgg gtcacgaagc and				300
cccctgcagc agggacagga gga				360
ccanacttgg cagaagactc cac				420
gctggctcat cccttgtagg tcc				480
gctggctcgt cccctgcagg tcc				540
getggetegt ceeetgeagg tee				600
getggetcaa teeettgtag gto				660
tteteggetg gettegteee tte				720
aatgggcttt ttgggttggg tto	ggccccc tggaaggtcc	ctggctgggc	cgggggggccc	780
tgggggtctt ccnaaagggg ct				802
0.0 506				
<210> 536				
<211> 901				
<212> DNA				
<213> Homo Sapiens				
<400> 536 aaaagaatgg aaaagaaaat ac				

660

720

780

aaagaagcat	ttgtgacatc	tgcatataag	aaaaaactgc	aagagagagc	tgaagaagaa	120
gaaagagaaa	agagggetge	tgcactggaa	gcatgtttgg	atgtaaccaa	gcagaaagat	180
ctcagtggat	tttataggca	cctattaaat	caagcagttg	gtgaagagga	agtacctaaa	240
			aaggaagaaa			300
gaagtaagtt	caaaaaacag	aataccacaa	gagaaatgca	ttcttcaaac	tgatgtgaaa	360
gtagaggaaa	acccagatgc	agacagtgac	ttcgatgcta	agagcagtgc	ggatgatgaa	420
atagaagaaa	ctagagtgaa	ctgcagaagg	gaaaaggtca	tagagacccc	tgagaatgac	480
			cggtcaccta			540
			tcgagaggac			600
			gaaccattac			660
			cagtcattag			720
			gnccaaggag			780
			nttcccaagg			840
	gatccgaaac	cgacccaatg	agaaaggaga	gaaggaagag	aaaagccaag	900
С						901
<210>	537					
<211>						
<212>						
	Homo Sapie	ens				
	-					
<400>						
			aagccaacta			60
			atttcagaac			120
			tcctgcaaca			180
			acagggtctc			240
			catcaaattc			300
			aggcatggac			360
			tgcctaggct			420
			ttggtattac			480
			gagcaaattt			540
			tcnncaaaga			600
			cattenaaca			660
			aaaaatgccc		ctgggaacac	720
ceteeettta	tgggtttane	ccagcagggt	tccaaggaat	t		761
<210>	538					
<211>	869					
<212>	> DNA					
<213>	Momo Sapi	ens				
<400>	F 2 0					
		ccatacetca	agggttetet	tatttatcas	aatttttaaa	60
			tcagtccgca			120
			acctaaattt			180
			tectecagaa			240
			ctatgttcct			300
			gagaactgaa			360
			ctatgatgcc			420
			ageteacett			480
			ctgttttcca			540
			atctttagag			600
			cgtgtaccgn			660

cacaccogge agactotgge catchatgae eggetttgge eeggttgatg tatgggeeag

gnagatgtcc ccaggatgtc ctggaagtat gttggantcg aaaagcagnt tgccaaancc

catcetttaa aacggggatg		ggeneeccc	gggcaccccc	ccaagcaggc	869
<210> 539					
<211> 760					
<212> DNA					
<213> Homo Sapi	ens				
<400> 539					
aagggataaa ttatttcttt					60
agtgagtcag tatatgaaaa					120
ccagtettea ttteettaaa					180
atctgaaggc tggtccatgc					240
ttttccaaca ccctgacaac					300
gaggatgetg etggttgtet					360
ctctgaaaca tactgtcttt					420
gagtgtccat ggccatgtta					480
ctgatgatga gactgctgaa					540
ttatagcatg aggggaatgg	gagacttcaa	agcttncagg	cagcctcatc	accccaggct	600
tcaccctaga aagtcatttt					660
gggcctcttc ataatcttct			gccaggggat	tcatnacccg	720
gctttaaagg gatggggcct	gcttaagggg	ggtgccccat			760
<210> 540					
<211> 874					
<212> DNA					
<213> Homo Sapi	ens				
<400> 540					
ggagcactgc ctcaaacatg					60
attetttggt cetttggage					120
tagtgtcaga aatcttccag					180
tettgeacte atgeaaaaga					240
tctcttaagc gagttctatg					300
tgttggtctg ctggtgggac					360
cttggattct caggttggag					420
tgatggtggc aaggagcatg					480
agaacttaac cggcacttga					540
ggaaaagact aactcaaagc					600
acttcaagaa gaacagcagc					660
aaaagagtgt agaagatacn					720
tegcaaggte tggatgaaat					780
ccggttggaa ctggaaaaaa atgccatgaa gttcctggna			aatgaaaacc	caaatnggaa	840
atgecatgaa geteetggna	aaggeeeeee	ccaa			874
<210> 541					
<211> 729					
<212> DNA					
<213> Homo Sapi	ens				
<400> 541					
gaaaaataaa tgattttatt					60
agatetettg tetgaageag					120
gcatgaatca ggtttttaga					180
actgctgtaa aataggttaa	attetttgaa	aagtgaaaaa	tgatagtagc	aaaatcatca	241

```
agttgtatct gaaccagagc cqtqatqtaa ccaaqtaaqa tqqaaqtttc catccagagg
                                                                      300
agttaattcc gaacaagtca cagaaaggtg agagctgccg gttccggcac gctgtcttct
                                                                      360
ggagtgccag tgaccgggca agaaatttga ttctttcctt tgattctctt qqqaaaqaac
                                                                      420
acatttccca agcccctgga gacccacagg gtttggcact qtccqtqaqq ctqtqctcct
                                                                      480
gaggacggac gttcaggagg ccgtggagga gcagcgctgc aggagcaggg tgtggcagct
                                                                      540
gtcgcacact cgcaccggct tggggtagga gggcagggcc cagetegttg etgggagcaq
                                                                      600
gtgtttgcan aagatgtggc ccacagttcc ggcagtnggt gctttctccg gggaaaatgg
                                                                      660
agaacttcct ttntcacacn tggctaccag tggggtcgnt ttcggcatct tttcaagcca
                                                                      720
aaccataaa
                                                                      729
      <210> 542
      <211> 830
      <212> DNA
      <213> Homo Sapiens
      <400> 542
gggacagegg ggacggcacg gegegegeag ettetaagtg ccagatgatg gaggagegtg
                                                                       60
ccaacctgat gcacatgatg aaactcagca tcaaggtgtt gctccagtcg gctctgagcc
                                                                      120
tgggccgcag cctggatgcg gaccatgccc ccttgcagca gttctttgta gtgatggagc
                                                                      180
actgcctcaa acatgggctg aaagttaaga agagttttat tggccaaaat aaatcattct
                                                                      240
ttggtccttt ggagctggtg gagaaacttt gtccagaaqc atcaqatata gcgactagtg
tcagaaatct tccagaatta aagacagctg tgggaagagg ccgagcgtgg ctttatcttg
                                                                      360
cactcatgca aaagaaactg gcagattatc tgaaagtgct tatagacaat aaacatctct
                                                                      420
taagcgagtt ctatgagcct gaggctttaa tgatggagga agaagggatg gtgattgttg
                                                                      480
gtctgctggt gggactcaat gttctcgatg ccaatctctg cttgaaagga gaagacttgg
                                                                      540
attotcaggt tggagtaata gatttttccc tctaccttaa ggatgtgcag gatcttgatg
                                                                      600
gtggcaagga gcatgaaaga attactgatg tccttgatca aaaaaattat gtggaagaac
                                                                      660
ttaacccggc acttgagctg caccagttgg ggatctttca acccaagata gatggctttg
                                                                      720
gaaaagacta actcaaagct tcagaagagc nttnagctgc accagaccga attttgctcc
                                                                      780
tttcaagaaa nacagcaccn gttaagaaaa ccaaatggaa ttaatttcag
                                                                      830
     <210> 543
     <211> 733
      <212> DNA
      <213> Homo Sapiens
      <400> 543
gaaaaataaa tgattttatt gcagggccaa tgataggtag tcacaagggc atgaaatggc
                                                                       60
agatetettg tetgaageag agaaggeaca etggeagaet ecatgtgtgt caaacgetgt
                                                                      120
gcatgaatca ggtttttaga aggaaggtag gagaggaaaa ctactcacta gcagaactga
                                                                      180
actgctgtaa aataggttaa attctttgaa aagtgaaaaa tgatagtagc aaaatcatga
                                                                      240
agttgtatct gaaccagagc cgtgatgtaa ccaagtaaga tggaagtttc catccagagg
                                                                      300
agttaattcc gaacaagtca cagaaaggtg anagctgccg gttccggcac gctgtcttct
                                                                      360
ggagtgccag tgaccgggca agaaatttga ttettteett tgattetett gggaaagaac
                                                                      420
acatttccca agcccctgga gacccacagg gtttggcact gtccgtgagg ctgtgctcct
                                                                      480
gaggacggac gttcaggagg cccgtggagg agcagcgctg caggagcagg gtgtggcagc
                                                                      540
tgtcgcacac tcgcaccggc ttggggtagg anggcagggc tagetcgttg ctgqancang
                                                                      600
tgttgcaaaa naatgtggcc acagntncgg cagtgggtgc tttntccggg aaaagggaga
                                                                      660
acttectint cacacttgge tacagnggng gnegettteg neatettitt ancecaggeg
                                                                      720
```

nnggcccttt caa

733

<210> 544 <211> 852

<212> DNA

<213> Homo Sapiens

<400> 544 gtggagaaat gcgctatcag ctgaataaaa ccaacatgga gaaggatgag gcagaaaagg 60 agcacagaga gttcagagca aaaactaaca gggatcttga aattaaagat caggaaatag 120 agaaattgag aatagaactg gatgaaagca aacaacactt ggaacaggag cagcagaagg 180 cagccctggc cagagaggag tgcctqaqac taacagaact gctgggcgaa tctgagcacc 240 aactgcacct caccagatct gaaatagctc aactcagtca agaaaaaagg tatacatatq 300 ataaattggg aaagttacag agaagaaatg aagaattgga ggaacagtgt gtccagcatg 360 ggagagtaca tgagacgatg aagcaaaggc taaggcagct qgataaqcac aqccaqqcca 420 cageccagea getggtgeag etecteagea ageagaacea getteteetg gagaggeaga 480 gcctgtcgga agaggtggac cggctgcgga cccagttacc cagcatgcca caatctgatt 540 gctgacctgg atggaacaga gtgaaataaa tgaattacaa agaqatattt acattcatct 600 ggtttagact taatatgcca caacgcacca cgaccttccc agggtgacac cgcctcagcc 660 tgcagtgggg ctggtcctca tcaacgcggg cgctgtcccc gcacgcagtc gggctggagc 720 tggagtetga etetagetga geagaeteet ggtgtatgtt tteagaaatg gettgaagtt 780 atgtgtttaa atctgctcat tcgtatgcta ggttatacat atgattttca ataaatqaac 840 tttttaaaga aa 852

<210> 545 <211> 414

<212> PRT

<213> Homo Sapiens

245

<400> 545

Leu Leu Asp Ala Ser Glu Lys Leu Lys Leu Thr Tyr Glu Glu Lys Cys 15 Glu Ile Glu Glu Ser Gln Leu Lys Phe Leu Arg Asn Asp Leu Ala Glu 20 3.0 Tyr Gln Arg Thr Cys Glu Asp Leu Lys Glu Gln Leu Lys His Lys Glu 40 Phe Leu Leu Ala Ala Asn Thr Cys Asn Arg Val Gly Gly Leu Cys Leu 55 Lys Cys Ala Gln His Glu Ala Val Leu Ser Gln Thr His Thr Asn Val 70 75 His Met Gln Thr Ile Glu Arg Leu Val Lys Glu Arg Asp Asp Leu Met Ser Ala Leu Val Ser Val Arg Ser Ser Leu Ala Asp Thr Gln Gln Arg 1.00 105 Glu Ala Ser Ala Tyr Glu Gln Val Lys Gln Val Leu Gln Ile Ser Glu 120 125 Glu Ala Asn Phe Glu Lys Thr Lys Ala Leu Ile Gln Cys Asp Gln Leu 135 140 Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg Leu Glu Lys Glu Leu Ala 145 150 155 Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys Asp Met Met Lys Lys Glu 165 170 Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser Lys Met Leu Ile Leu Ser 180 185 190 Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu Lys Val Thr Lys Glu 200 Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Ile Gln Ser Gln Leu Ala 215 220 Ser Arg Glu Met Asp Val Thr Lys Val Cys Gly Glu Met Arg Tyr Gln 230 235 Leu Asn Lys Thr Asn Met Glu Lys Asp Glu Ala Glu Lys Glu His Arg

```
Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu Glu Ile Lys Asp Gln Glu
Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu Ser Lys Gln His Leu Glu
                            280
Gln Glu Gln Lys Ala Ala Leu Ala Arg Glu Glu Cys Leu Arg Leu
                        295
                                            300
Thr Glu Leu Leu Gly Glu Ser Glu His Gln Leu His Leu Thr Arg Ser
                    310
Glu Ile Ala Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu
                325
                                    330
Gly Lys Leu Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln
                                345
His Gly Arg Val His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp
                            360
Lys His Ser Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys
                        375
Gln Asn Gln Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp
Arg Leu Arg Thr Gln Leu Pro Ser Met Pro Gln Ser Asp Cys
                405
                                    410
```

<210> 546 <211> 2885

<212> DNA <213> Homo Sapiens

<400> 546

```
ggaattecte ttqtcqaaqt caaaqqaqce cacaccaqqe qqcctcaacc attccctcc
                                                                       60
acagcacccc aaatgctggg gagcccacca tgcttctttg gaccagagtt cccctcccca
                                                                      120
gageggeece cetgggaege eteceteeta caaactgeet ttgeetggge eetacgaeag
                                                                      180
togagacgac ttccccctcc gcaaaacagc ctctgaaccc aacttgaaaq tqcqttcaaq
                                                                      240
gctaaaacag aaggtggctg agcggagaag cagtcccctc ctgcgtcgca aggatgggac
                                                                      300
tgttattage acctttaaga agagagetgt tgagatcaca ggtgeeggge etggggegte
                                                                      360
gtoogtgtgt aacagogcac coggetoogg coccagetet cocaacaget cocacagoac
                                                                      420
categorgag aatggettta etggeteagt ecceaacate eccaetgaga tgeteectea
                                                                      480
geacegagee etecetetgg acageteece caaccagtte ageetetaca egteteette
                                                                      540
tetgeceaac atetecetag ggetgeagge caeggteaet gteaceaact caeaceteae
                                                                      600
tgcctccccg aagctgtcga cacagcagga ggccgagagg caggccctcc agtccctgcg
gragggtggc acgetgaceg graagtteat gageacatee tetatteetg getgeetget
                                                                      720
gggcgtggca ctggagggcg acgggagccc ccacgggcat gcctccctgc tgcagcatgt
                                                                      780
getgttgetg gageaggeec ggeageagag caeceteatt getgtgeeae tecaegggea
                                                                      840
gtccccacta gtgacggtg aacgtgtggc caccagcatg cggacggtag gcaaqctccc
                                                                      900
geggeategg eccetgagee geacteagte etcacegetg ecgeagagte eccaggeeet
                                                                      960
gcagcagctg gtcatgcaac aacagcacca gcagttcctg gagaagcaga agcagcagca
                                                                     1020
gctacagetg ggcaaqatec tcaccaagac aggggagetg cccaggcage ccaccaccca
                                                                     1080
ccctgaggag acagaggagg agctgacgga gcagcaggag gtcttgctgg gggagggagc
                                                                     1140
cetgaceatg eccegggagg getecacaga gagtgagage acacaggaag acetggagga
                                                                     1200
ggaggacgag gaagaggatg gggaggagga qqaqqattqc atccaqqtta aqqacqaqqa
                                                                     1260
gggcgagagt ggtgctgagg aggggcccga cttggaggag cctggtgctg gatacaaaaa
                                                                     1320
actgittctca gatgcccaac cgctgcaacc tittgcaggig taccaagege ccctcagcct
                                                                     1380
ggccactgtg coccaccaag coctgggccg tacccaatec tecectgctq cocctqqqqq
                                                                     1440
catgaagaac cccccagacc aaccegtcaa gcacctcttc accacaagtg tggtctacga
                                                                     1500
caegtteatg etaaageace agtgeatgtg egggaacaca caegtgeace etgageatge
                                                                     1560
tggccggatc cagagcatct ggtcccggct gcaggagaca ggcctgctta gcaagtgcga
                                                                     1620
geggateega ggtegeaaag eeaegetaga tgagateeag acagtgeaet etgaatacea
                                                                     1680
```

```
caccetque tatqqqacca qteccetcaa ceggcagaag ctaqacaqca aqaaqttqct
eggteceate agecagaaga tgtatgetgt getgeettgt gggggeateg gggtggacag
                                                                     1800
tgacaccgtg tggaatgaga tgcactcctc cagtgctgtg cgcatggcag tgggctgcct
                                                                    1860
getggagetg geetteaagg tggetgeagg agageteaag aatggatttg ceateateeg
qccccagga caccacgccg aggaatccac agccatggga ttctgcttct tcaactctgt
agecateace qeaaaactee tacaqeaqaa gttgaacgtg ggcaaqgtee teatcqtqqa
                                                                    2040
ctgggacatt caccatggca atggcaccca gcaggcgttc tacaatgacc cctctgtgct
                                                                    2100
ctacatetet etgeateget atgacaaegg gaacttettt ecaggetetg gggeteetga
                                                                     2160
aqaqqttqqt qqaqqaccaq qcqtqqqqta caatgtgaac gtggcatgga caqqaqqtqt
                                                                     2220
ggacccccc attggagacg tggagtacct tacagccttc aggacagtgg tgatgcccat
                                                                     2280
tgcccacgag ttctcacctg atgtggtcct agtctccgcc gggtttgatg ctgttgaagg
acatetgtet cetetgggtg getactetgt cacegocaga tgttttggcc acttgaccag
                                                                     2400
qeaqetgatq accetggeag ggggeegggt ggtgetggee etggagggag geeatgaett
                                                                     2460
qaccqccatc tqtqatqcct ctqaaqcttg tgtctcggct ctgctcagtg taaaqctqca
gecettggat gaggeagtet tgcagcaaaa geccaacate aacgeagtgg ceaegetaga
                                                                     2580
gaaagtcatc gagatccaga gcaaacactg gagctgtgtg cagaagttcg ccgctqqtct
gggccggtcc ctgcgagggg cccaagcagg tgagaccgaa gaagccgaaa tgtgaacqcc
atggeettge tgttggtggg ggeegaacag geecaagetg eggeageeeg ggaacacage
                                                                     2760
cccaqqccqq caqaqqaqcc catqqaqcaq qaqcctqccc tqtqacqccc cqqccccat
                                                                     2820
ccctttgggc ttcaccattg tgattttgtt tattttttct attaaaaaca aaaagttaaa
                                                                     2880
aattt
                                                                     2885
```

<210> 547 <211> 897

<212> PRT

<213> Homo Sapiens

<400> 547

Glu Phe Leu Leu Ser Lys Ser Lys Glu Pro Thr Pro Gly Gly Leu Asn 5 10 His Ser Leu Pro Gln His Pro Lys Cys Trp Gly Ala His His Ala Ser 20 25 Leu Asp Gln Ser Ser Pro Pro Gln Ser Gly Pro Pro Gly Thr Pro Pro 40 Ser Tyr Lys Leu Pro Leu Pro Gly Pro Tyr Asp Ser Arg Asp Asp Phe 55 Pro Leu Arg Lys Thr Ala Ser Glu Pro Asn Leu Lys Val Arg Ser Arg 65 70 75 Leu Lys Gln Lys Val Ala Glu Arg Arg Ser Ser Pro Leu Leu Arg Arg 90 Lys Asp Gly Thr Val Ile Ser Thr Phe Lys Lys Arg Ala Val Glu Ile Thr Gly Ala Gly Pro Gly Ala Ser Ser Val Cys Asn Ser Ala Pro Gly 120 Ser Gly Pro Ser Ser Pro Asn Ser Ser His Ser Thr Ile Ala Glu Asn 135 Gly Phe Thr Gly Ser Val Pro Asn Ile Pro Thr Glu Met Leu Pro Gln 150 155 His Arg Ala Leu Pro Leu Asp Ser Ser Pro Asn Gln Phe Ser Leu Tyr 165 170 Thr Ser Pro Ser Leu Pro Asn Ile Ser Leu Gly Leu Gln Ala Thr Val 185 Thr Val Thr Asn Ser His Leu Thr Ala Ser Pro Lys Leu Ser Thr Gln 200 Gln Glu Ala Glu Arg Gln Ala Leu Gln Ser Leu Arg Gln Glv Glv Thr

215 220 Leu Thr Gly Lys Phe Met Ser Thr Ser Ser Ile Pro Gly Cys Leu Leu 230 235 Gly Val Ala Leu Glu Gly Asp Gly Ser Pro His Gly His Ala Ser Leu 245 250 Leu Gln His Val Leu Leu Glu Gln Ala Arg Gln Gln Ser Thr Leu 260 265 Ile Ala Val Pro Leu His Gly Gln Ser Pro Leu Val Thr Gly Glu Arq 275 280 Val Ala Thr Ser Met Arg Thr Val Gly Lys Leu Pro Arg His Arg Pro 295 300 Leu Ser Arg Thr Gln Ser Ser Pro Leu Pro Gln Ser Pro Gln Ala Leu 310 315 Gln Gln Leu Val Met Gln Gln Gln His Gln Gln Phe Leu Glu Lys Gln 325 330 Lys Gln Gln Gln Leu Gln Leu Gly Lys Ile Leu Thr Lys Thr Gly Glu 345 Leu Pro Arg Gln Pro Thr Thr His Pro Glu Glu Thr Glu Glu Glu Leu 360 Thr Glu Gln Gln Glu Val Leu Leu Gly Glu Gly Ala Leu Thr Met Pro 375 380 Arg Glu Gly Ser Thr Glu Ser Glu Ser Thr Gln Glu Asp Leu Glu Glu 390 395 Glu Asp Glu Glu Glu Asp Gly Glu Glu Glu Glu Asp Cys Ile Gln Val 405 410 Lys Asp Glu Glu Gly Glu Ser Gly Ala Glu Glu Gly Pro Asp Leu Glu 425 Glu Pro Gly Ala Gly Tyr Lys Lys Leu Phe Ser Asp Ala Gln Pro Leu 440 Gln Pro Leu Gln Val Tyr Gln Ala Pro Leu Ser Leu Ala Thr Val Pro 455 460 His Gln Ala Leu Gly Arg Thr Gln Ser Ser Pro Ala Ala Pro Gly Gly 470 475 Met Lys Asn Pro Pro Asp Gln Pro Val Lys His Leu Phe Thr Thr Ser 490 485 Val Val Tyr Asp Thr Phe Met Leu Lys His Gln Cys Met Cys Gly Asn 500 505 Thr His Val His Pro Glu His Ala Gly Arg Ile Gln Ser Ile Trp Ser 520 Arg Leu Gln Glu Thr Gly Leu Leu Ser Lys Cys Glu Arg Ile Arg Gly 535 Arg Lys Ala Thr Leu Asp Glu Ile Gln Thr Val His Ser Glu Tyr His 550 555 Thr Leu Leu Tyr Gly Thr Ser Pro Leu Asn Arg Gln Lys Leu Asp Ser 565 570 Lys Lys Leu Leu Gly Pro Ile Ser Gln Lys Met Tyr Ala Val Leu Pro 585 Cys Gly Gly Ile Gly Val Asp Ser Asp Thr Val Trp Asn Glu Met His 595 600 Ser Ser Ser Ala Val Arg Met Ala Val Gly Cys Leu Leu Glu Leu Ala 615 620 Phe Lys Val Ala Ala Gly Glu Leu Lys Asn Gly Phe Ala Ile Ile Arg 630 635 Pro Pro Gly His His Ala Glu Glu Ser Thr Ala Met Gly Phe Cys Phe 650

```
Phe Asn Ser Val Ala Ile Thr Ala Lys Leu Leu Gln Gln Lys Leu Asn
                                665
Val Gly Lys Val Leu Ile Val Asp Trp Asp Ile His His Gly Asn Gly
                            680
Thr Gln Gln Ala Phe Tyr Asn Asp Pro Ser Val Leu Tyr Ile Ser Leu
                        695
His Arg Tyr Asp Asn Gly Asn Phe Phe Pro Gly Ser Gly Ala Pro Glu
                    710
                                        715
Glu Val Gly Gly Gly Pro Gly Val Gly Tyr Asn Val Asn Val Ala Trp
                725
                                    730
Thr Gly Gly Val Asp Pro Pro Ile Gly Asp Val Glu Tyr Leu Thr Ala
            740
                                745
Phe Arg Thr Val Val Met Pro Ile Ala His Glu Phe Ser Pro Asp Val
                            760
Val Leu Val Ser Ala Gly Phe Asp Ala Val Glu Gly His Leu Ser Pro
                        775
                                             780
Leu Gly Gly Tyr Ser Val Thr Ala Arg Cys Phe Gly His Leu Thr Arg
                    790
                                         795
Gln Leu Met Thr Leu Ala Gly Gly Arg Val Val Leu Ala Leu Glu Gly
                                     810
Gly His Asp Leu Thr Ala Ile Cys Asp Ala Ser Glu Ala Cys Val Ser
                                825
Ala Leu Leu Ser Val Lys Leu Gln Pro Leu Asp Glu Ala Val Leu Gln
                            840
Gln Lys Pro Asn Ile Asn Ala Val Ala Thr Leu Glu Lys Val Ile Glu
                                             860
                        855
Ile Gln Ser Lvs His Trp Ser Cvs Val Gln Lvs Phe Ala Ala Glv Leu
                    870
                                         875
Gly Arg Ser Leu Arg Gly Ala Gln Ala Gly Glu Thr Glu Glu Ala Glu
                                     890
Met
```

<210> 548 <211> 1298

<212> DNA

<213> Homo Sapiens

<400> 548

ggctgctgaa atgactgcga accggcttgc agagagcctt ctggctttga gccancagga 60 aqaactaqcq gatttgccaa aagactacct cttgagtgag agtgaagatg agqqqgacaa 120 tqatqqaqaq aqaaaqcatc naaaqcttct qqaaqcaatc aqttcccttq atqqaaaqaa 180 taggcggaaa ttggctgana ggtctgaggc tagtctgaag gtgtcagagt tcaatgtcag 240 ttctgaagga tcaggagaaa agctggtcct tgcagatctg cttgagcctg ttaaaacttc 300 atcttctttg gccactgtga aaaagcaact gagtagagtc anatcaaaga anacagtgga gttacetetg aacaaagaag agattgaacg gatccacaga gaatagcatt caataaaacg 420 cacaaqteet etecaaatqq qaecetqteq teetqaaqaa eeqqcaqqea qaqcaqetqq 480 tttttcccct ggagaaagag gagccagcca ttgctcccat tgaacatgtg ctcagtggct 540 ggaaggcaag aactcccctg gagcaggaaa ttttcaacct cctccataag aacaagcagc 600 cagtgacaga ccctttactg acccctgtgg aaaaggcctc tctccgagcc atgagcctag 660 aaqaqqcaaa qatqcqacqa qcaqaqcttc aqaqqqctcq qqctctqcaq tcctactatq angccaaggc tcgaagagag aagaaaatcn aaagttaaaa gtatcacaaa gtcgtgaaga 780 aaggaaaggc caagaaagcc ctaaaagagt ttgagcagct gcggaaggtt aatccagctg 840 900 960

wc	99/0	4203													1 (1/05)	JUI 1 4017
gaga	aaqa	aa a	ggag	aaqq	a aa	agga	aaaq	aaq	gaga	aga	aaqa	agaa	ct a	agaa	gaagg	1020
															gaaga	1080
agga	aaga	ag a	ggaa	gaac	t na	gaag	aaga	aag	agga	gga	aaga	agaa	ag a	agaa	taagg	1140
aacn	agaa	ag a	agga	gaag	ja aa	gaat	aaga	aga	ggaa	gaa	gaaa	aaga	ag a	aaaag	aagaa	1200
ggaa	agaa	gg a	gaaa	aagg	a ag	gaaaa	aagg	aag	aaga	aag	taga	aago	gg a	agaa	agaaa	1260
agaa	agta	ta a	gaag	gaag	ra aç	gaaga	aaga	agg	aaaa	ıa						1298
		10>														
		11>														
		12>			iens											
	< 2	132	HOME	Jag	Tells	•										
	<4	O0>	549													
Ala				Thr	Ala	Asn	Arg	Leu	Ala	Glu	Ser	Leu	Leu	Ala	Leu	
1				5			-		10					15		
Ser	Gln	Glu	Glu	Leu	Ala	Asp	Leu	Pro	Lys	Asp	Tyr	Leu	Leu	Ser	Glu	
			20					25					30			
Ser	Glu	Asp	Glu	Gly	Asp	Asn		Gly	Glu	Arg	Lys	His	Lys	Leu	Leu	
		35					40	_		_		45				
Glu		Ile	Ser	Ser	Leu		Gly	Lys	Asn	Arg		Lys	Leu	Ala	Arg	
	50					55		63	D1		60			1		
ser 65	GIU	Ата	ser	ьeu	Tys 70	vaı	ser	GIU	Pne	75	vai	ser	ser	Glu	80 GIA	
	C1	C1.,	Tara	T 011		T 011	nlα	Acn	T 011		Glu.	Dro	17-1	Lys		
Ser	GIY	GIU	шуз	85	val	Бец	nia	Map	90	шец	Gru	110	vai	95	1111	
Ser	Ser	Ser	Leu		Thr	Val	Lvs	Lvs		Leu	Ser	Arq	Val	Ser	Lvs	
			100				-	105				_	110			
Thr	Val	Glu	Leu	Pro	Leu	Asn	Lys	Glu	Glu	Ile	Glu	Arg	Ile	His	Arg	
		115					120					125				
Glu		Ala	Phe	Asn	Lys		His	Lys	Ser	Ser		Asn	Gly	Thr	Leu	
	130					135		_		_	140					
	ser	Val	Leu	Lys		Arg	Gln	Ala	Glu		Leu	Val	Phe	Pro		
145		a 1	~ 1		150	-1-	* 7 -		-7 -	155	***	**- 3			160	
GIU	ьуѕ	GIU	GIU	165	ALA	ile	AIA	Pro	170	GIU	HIS	vaı	Leu	Ser 175	GIA	
Trn	Targ	αla	Ara		Pro	T.em	Glu	Gln		Tle	Dhe	Δen	T.011	Leu	Hie	
115	Lys	ALU	180	1111	110	шош		185	OLU	110			190		*****	
Lvs	Asn	Lvs		Pro	Val	Thr	Asp		Leu	Leu	Thr	Pro		Glu	Lvs	
-		195					200					205				
Ala	ser	Leu	Arg	Ala	Met	ser	Leu	Glu	Glu	Ala	Lys	Met	Arg	Arg	Ala	
	210		_			215					220					
	Leu	Gln	Arg	Ala	Arg	Ala	Leu	Gln	Ser							
225					230					235						
	-	210>	550													

<211> 2236 <212> DNA

<213> Homo Sapiens

<400> 550

cctggcccgg tcgcggtcgc ggctctttcc agctcctggc agccgggcac ccgaaggaac 60 gggtcgtgca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggcccgagaa 120 ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat 180 gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctg 240 gtcatcaatg aacccagccg tctgcctctg tttgatgcca ttcggccgct gatcccactg 300

```
aagcaccagg tggaatatga teagetgaee eeceggeget ceaggaaget gaaggaggtg
                                                                   360
                                                                   420
eqtetqqaee qtetqeaeee eqaaggeete ggeetgagtg tgegtggtgg eetggagttt
                                                                   480
qqctqtqqqc tcttcatctc ccacctcatc aaaqgcggtc aggcagacag cgtcgggctc
caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg tacccatgag
                                                                   540
gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagtgag acacatcggc
ctgatccccg tgaaaagctc tcctgatgag cccctcactt ggcagtatgt ggatcagttt
                                                                   660
qtqtcqqaat ctqqqqqcqt gcgaqqcagc ctgggctccc ctggaaatcg ggaaaacaag
                                                                   720
gagaagaagg tetteateag eetggtagge teeegaggee ttggetgeag eattteeage
                                                                   780
ggececatec agaageetgg catetttate agecatgtga aacctggete cetgtetget
                                                                   840
                                                                   900
qaqqtqggat tggagatagg ggaccagatt gtcgaagtca atggcgtcga cttctctaac
ctggatcaca aggaggctgt aaatgtgctg aaaaatagcc gcagcctgac catctccatt
                                                                   960
gtagetgeag etggeeggga getgtteatg acagaceggg ageggetgge agaggegegg
                                                                  1020
caqcqtgagc tgcagcggca ggagcttctc atgcagaagc ggctggcgat ggagtccaac
                                                                  1080
aaqatcctcc aggagcagca ggagatggag cggcaaagga gaaaagaaat tgcccagaag
                                                                  1140
qcaqcaqaqq aaaatqaqaq ataccggaaq qagatggaac agattgtaga ggaggaagag
                                                                  1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa
                                                                  1260
accatcactg ctgaggtaca eccagtaccc cttcgcaagc caaagtatga tcagggagtg
                                                                  1320
qaacetqage tegageeege agatgacetg gatggaggca eggaggagea gggagageag
                                                                  1380
qatttccqqa aatatgagga aggctttgac ccctactcta tgttcacccc agagcagatc
                                                                  1440
atggggaagg atgtccggct cctacgcatc aagaaggagg gatccttaga cctggccctg
gaaggeggtg tggaeteece cattgggaag gtggtegttt etgetgtgta tgagegggga
                                                                  1560
gctgctgagc ggcatggtgg cattgtgaaa ggggacgaga tcatggcaat caacggcaag
                                                                  1620
attqtgacag actacaccct ggctgaggct gacgctgccc tgcagaaggc ctggaatcag
qqcqqqact ggatcqacct tgtggttgcc gtctgccccc caaaggagta tgacgatgag
                                                                  1740
ctqaccttct tqctqaaqtc caaaaqqqqa aaccaaattc acgcgttagg aaacagtgaq
                                                                  1800
ctccqqccc acctcqtqaa cacaaaqcct cqqaccaqcc ttqaqaqaqq ccacatqaca
                                                                  1860
cacaccagat ggcatccttg ggacctgaat ctatcaccca ggaatctcaa actccctttg
                                                                   1920
gccctgaacc agggccagat aaggaacagc tcgggccact tttttgaagg ccaatgtgga
                                                                   1980
ggaaagggag cagccagccg tttgggagaa gatctcaagg atccagactc tcattccttt
                                                                   2040
cctctggccc agtgaatttg gtctctccca gctttggggg actccttcct tqaaccctaa
taaqacccca ctqqaqtctc tctctctcca tccctctcct ctgccctctg ctctaattgc
                                                                   2160
2220
ttccaqctta aaaaaa
                                                                   2236
```

```
<210> 551
<211> 652
<212> PRT
```

<213> Homo Sapiens

<400> 551

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu 1 5 10 Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu 40 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg 70 75 Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu 90 Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu 105 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu

120 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser 135 140 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val 150 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro 165 170 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser 185 180 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys 200 Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys 215 220 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp 245 250 Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys 265 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile 280 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu 295 300 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln 310 315 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu 325 330 Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu 345 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu 360 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu 375 380 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg 390 395 Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp 405 410 Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Asp Phe Arg Lys 425 Tyr Glu Glu Gly Phe Asp Pro Tyr Ser Met Phe Thr Pro Glu Gln Ile 440 Met Gly Lys Asp Val Arg Leu Leu Arg Ile Lys Lys Glu Gly Ser Leu 455 460 Asp Leu Ala Leu Glu Gly Gly Val Asp Ser Pro Ile Gly Lys Val Val 470 475 Val Ser Ala Val Tyr Glu Arg Gly Ala Ala Glu Arg His Gly Gly Ile 490 485 Val Lys Gly Asp Glu Ile Met Ala Ile Asn Gly Lys Ile Val Thr Asp 505 Tyr Thr Leu Ala Glu Ala Asp Ala Ala Leu Gln Lys Ala Trp Asn Gln 520 Glv Glv Asp Trp Ile Asp Leu Val Val Ala Val Cvs Pro Pro Lvs Glu 535 540 Tyr Asp Asp Glu Leu Thr Phe Leu Leu Lys Ser Lys Arg Gly Asn Gln

555

550

```
Ile His Ala Leu Gly Asn Ser Glu Leu Arg Pro His Leu Val Asn Thr
                565
Lys Pro Arg Thr Ser Leu Glu Arg Gly His Met Thr His Thr Arg Trp
                                585
His Pro Trp Asp Leu Asn Leu Ser Pro Arg Asn Leu Lys Leu Pro Leu
                            600
Ala Leu Asn Gln Gly Gln Ile Arg Asn Ser Ser Gly His Phe Phe Glu
                        615
Gly Gln Cys Gly Gly Lys Gly Ala Ala Ser Arg Leu Gly Glu Asp Leu
                    630
                                        635
Lys Asp Pro Asp Ser His Ser Phe Pro Leu Ala Gln
                645
```

<210> 552 <211> 2162 <212> DNA

<213> Homo Sapiens

```
<400> 552
cetggeeegg tegeggtege ggetetttee ageteetgge ageegggeac cegaaggaac
                                                                       60
gggtcgtgca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggcccqaqaa
                                                                      120
ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat
gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctg
                                                                      240
gtcatcaatg aacccagccg totgcctotg tttgatgcca ttcggccgct gatcccactg
                                                                      300
aagcaccagg tggaatatga tcagctgacc ccccggcgct ccaggaagct gaaggaggtg
                                                                      360
egtetggace gtetgcacce egaaggeete ggeetgagtg tgegtggtgg cetqqaqttt
                                                                      420
ggetgtggge tetteatete ecaceteate aaaggeggte aggeagaeag egtegggete
                                                                      480
caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg tacccatgag
                                                                      540
gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagtgag acacatcggc
                                                                      600
ctgatccccg tgaaaagctc tcctgatgag cccctcactt ggcagtatgt ggatcagttt
                                                                      660
gtgtcggaat ctgggggcgt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag
                                                                      720
gagaagaagg tottcatcag cotggtaggc tocogaggcc ttggctgcag catttccagc
                                                                      780
ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cetgtctqct
gaggtgggat tggagatagg ggaccagatt gtcgaagtca atggcgtcga cttctctaac
                                                                      900
ctggatcaca aggaggctgt aaatgtgctg aaaaatagcc gcagcctgac catctccatt
                                                                      960
gtagetgeag etggeeggga getgtteatg acagaceggg ageggetgge agaggegegg
cagegtgage tgcageggca ggagettete atgcagaage ggetggegat ggagtecaae
                                                                     1080
aagatcetee aggageagea ggagatggag eggeaaagga gaaaagaaat tgeccaqaag
                                                                    1140
gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag
                                                                    1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa
accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtgatt tccggaaata
                                                                     1320
tgaggaaggc tttgacccct actctatgtt caccccagag cagatcatgg ggaaggatgt
                                                                    1380
ceggetecta egcateaaga aggagggate ettagaeetg geeetggaag geggtgtgga
                                                                     1440
ctcccccatt gggaaggtgg tcgtttctgc tgtgtatgag cggggagctg ctgagcggca
                                                                     1500
tggtggcatt gtgaaagggg acgagatcat ggcaatcaac ggcaagattg tgacagacta
                                                                     1560
caccetgget gaggetgaeg etgecetgea gaaggeetgg aateagggeg gggaetggat
cgaccttgtg gttgccgtct gccccccaaa ggagtatgac gatgagctga ccttcttgct
gaagtccaaa aggggaaacc aaattcacgc gttaggaaac agtgagctcc ggccccacct
cgtgaacaca aagcetegga ccageettga gagaggeeac atgacacaca ccagatggca
teettgggac etgaatetat cacccaggaa tetcaaacte eetttggeec tgaaccaggg
                                                                    1860
ccagataagg aacagetegg gecaettttt tgaaggecaa tgtggaggaa agggageage
cagccgtttg ggagaagatc tcaaggatcc agactctcat tcctttcctc tggcccagtg
aatttggtct ctcccagctt tgggggactc cttccttgaa ccctaataaq accccactgg
                                                                     2040
agtetetete tetecatece tetectetge cetetgetet aattgetgee aggattgtea
                                                                     2100
ctccaaacct tactctgagc tcattaataa aataaacaga tttattttcc agcttaaaaa
                                                                     2160
```

aa 2162

<210> 553 <211> 403

<212> PRT

<213> Homo Sapiens

<400> 553

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu 1.0 Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met 25 Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu

40 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro

Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu

90 Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu

100 105 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu

115 120 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser 135 140

Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val 150 155 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro

170 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser 185

Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys 200

Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys 215 220 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His

230 235 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp 245 250

Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys 265

Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile 280 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu

295 300 Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln 310 315 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu 325 330

Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu 340 345

Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu 360 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu

WO 99/04265 PCT/US98/14679 375 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg 385 395 Lys Pro Lys <210> 554 <211> 1789 <212> DNA <213> Homo Sapiens <400> 554 cttctggatg catccgagaa gctaaaactt acttatgagg aaaagtgtga aattgaggaa 60 teceaattga agtttttgag gaacgaetta getgaatate agagaaettg tgaagatett 120 aaagagcaac taaagcataa agaatttott otggotgota ataottgtaa cogtgttggt ggtctttgtt tgaaatgtgc tcagcatgaa gctgttcttt cccaaaccca tactaatgtt 240 catatgcaga ccatcgaaag actggttaaa gaaagagatg acttgatgtc tgcactagtt 300 teegtaagga geagettgge agatacgeag caaagagaag caagtgetta tgaacaggtg 360 aaacaagttt tgcaaatatc tgaggaagcc aattttgaaa aaaccaaggc tttaatccag 420 tgtgaccagt tgaggaagga gctggagagg caggcggagc gacttgaaaa agaacttgca 480 tctcagcaag agaaaagggc cattgagaaa gacatgatga aaaaggaaat aacgaaagaa agggagtaca tgggatcaaa gatgttgatc ttgtctcaga atattgccca actggaggcc 600 caggtggaaa aggttacaaa ggaaaagatt tcagctatta atcaactgga ggaaattcaa 660 agccagctgg cttctcggga aatggatgtc acaaaggtgt gtggagaaat gcgctatcag 720 ctgaataaaa ccaacatgga gaaggatgag gcagaaaagg agcacagaga gttcagagca 780 aaaactaaca gggatettga aattaaagat caggaaatag agaaattgag aatagaactg 840 gatgaaagca aacaacactt ggaacaggag cagcagaagg cagccctggc cagagaggag 900 tgcctgagac taacagaact gctgggcgaa tctgagcacc aactgcacct caccagacag 960 gaaaaagata gcattcagca gagctttagc aaggaagcaa aggcccaagc ccttcaggcc 1020 cagcaaagag agcaggagct gacacagaag atacagcaaa tggaagccca gcatgacaaa 1080 actgaaaatg aacagtattt gttgctgacc tcccagaata catttttgac aaagttaaag 1140 gaagaatgct gtacattagc caagaaactg gaacaaatct ctcaaaaaac cagatctgaa 1200 atageteaac teagteaaga aaaaaggtat acatatgata aattgggaaa gttacagaga 1260 agaaatgaag aattggagga acagtgtgtc cagcatggga gagtacatga gacgatgaag 1320 caaaggctaa ggcagctgga taagcacagc caggccacag cccagcagct ggtgcagctc 1380 ctcagcaagc agaaccagct tctcctggag aggcagagcc tgtcggaaga ggtggaccqq 1440 ctgcggaccc agttacccag catgccacaa tctgattgct gacctggatg gaacaqaqtq 1500 aaataaatga attacaaaga gatatttaca ttcatctggt ttagacttaa tatgccacaa 1560 cgcaccacga cetteccagg gtgacaccgc ctcagcetgc agtggggetg gtcctcatca acgegggege tgteceegea egeagteggg etggagetgg agtetgaete tagetgagea 1680 gactectggt gtatgttttc agaaatggct tgaagttatg tgtttaaatc tgctcattcg 1740 tatgctaggt tatacatatg attttcaata aatgaacttt ttaaagaaa 1789 <210> 555 <211> 493 <212> PRT <213> Homo Sapiens <400> 555 Leu Leu Asp Ala Ser Glu Lys Leu Lys Leu Thr Tyr Glu Glu Lys Cys

Leu Leu Asp Ala Ser Glu Lys Leu Lys Leu Thr Tyr Glu Glu Lys Cys

1 5 10 15

Glu Ile Glu Glu Ser Gln Leu Lys Phe Leu Arg Asn Asp Leu Ala Glu
20 25 30

Tyr Gln Arg Thr Cys Glu Asp Leu Lys Glu Gln Leu Lys His Lys Glu
35 40

```
Phe Leu Leu Ala Ala Asn Thr Cys Asn Arg Val Gly Gly Leu Cys Leu
                       55
Lys Cys Ala Gln His Glu Ala Val Leu Ser Gln Thr His Thr Asn Val
                   70
                                      75
His Met Gln Thr Ile Glu Arg Leu Val Lys Glu Arg Asp Asp Leu Met
               85
                                  90
Ser Ala Leu Val Ser Val Arg Ser Ser Leu Ala Asp Thr Gln Gln Arg
          100
                              105
Glu Ala Ser Ala Tyr Glu Gln Val Lys Gln Val Leu Gln Ile Ser Glu
                          120
                                              125
Glu Ala Asn Phe Glu Lys Thr Lys Ala Leu Ile Gln Cys Asp Gln Leu
                       135
Arg Lys Glu Leu Glu Arg Gln Ala Glu Arg Leu Glu Lys Glu Leu Ala
                   150
                                      155
Ser Gln Gln Glu Lys Arg Ala Ile Glu Lys Asp Met Met Lys Lys Glu
               165
                                  170
Ile Thr Lys Glu Arg Glu Tyr Met Gly Ser Lys Met Leu Ile Leu Ser
           180
                              185
Gln Asn Ile Ala Gln Leu Glu Ala Gln Val Glu Lys Val Thr Lys Glu
                          200
                                              205
Lys Ile Ser Ala Ile Asn Gln Leu Glu Glu Ile Gln Ser Gln Leu Ala
                      215
                                          220
Ser Arg Glu Met Asp Val Thr Lys Val Cys Gly Glu Met Arg Tyr Gln
                   230
                                       235
Leu Asn Lys Thr Asn Met Glu Lys Asp Glu Ala Glu Lys Glu His Arg
               245
                                  250
Glu Phe Arg Ala Lys Thr Asn Arg Asp Leu Glu Ile Lys Asp Gln Glu
                              265
Ile Glu Lys Leu Arg Ile Glu Leu Asp Glu Ser Lys Gln His Leu Glu
                          280
                                              285
Gln Glu Gln Gln Lys Ala Ala Leu Ala Arg Glu Glu Cys Leu Arg Leu
                      295
                                          300
Thr Glu Leu Leu Gly Glu Ser Glu His Gln Leu His Leu Thr Arg Gln
                  310
                                      315
Glu Lys Asp Ser Ile Gln Gln Ser Phe Ser Lys Glu Ala Lys Ala Gln
              325
                                  330
Ala Leu Gln Ala Gln Gln Arg Glu Gln Glu Leu Thr Gln Lys Ile Gln
                              345
Gln Met Glu Ala Gln His Asp Lys Thr Glu Asn Glu Gln Tyr Leu Leu
                          360
Leu Thr Ser Gln Asn Thr Phe Leu Thr Lys Leu Lys Glu Glu Cys Cys
                      375
                                          380
Thr Leu Ala Lys Lys Leu Glu Gln Ile Ser Gln Lys Thr Arg Ser Glu
                  390
                                      395
Ile Ala Gln Leu Ser Gln Glu Lys Arg Tyr Thr Tyr Asp Lys Leu Gly
              405
                                  410
Lys Leu Gln Arg Arg Asn Glu Glu Leu Glu Glu Gln Cys Val Gln His
                               425
Gly Arg Val His Glu Thr Met Lys Gln Arg Leu Arg Gln Leu Asp Lys
                           440
His Ser Gln Ala Thr Ala Gln Gln Leu Val Gln Leu Leu Ser Lys Gln
                       455
                                          460
Asn Gln Leu Leu Glu Arg Gln Ser Leu Ser Glu Glu Val Asp Arg
                   470
Leu Arg Thr Gln Leu Pro Ser Met Pro Gln Ser Asp Cys
```

60

120

240

300

420

480

540

600

660

720

780

840

900

960

<210> 556 <211> 1306

<212> DNA

<213> Homo Sapiens

<400> 556

aaaaatagee gcageetgae cateteeatt gtagetgeag etggeeggga getgtteatg acagaccggg agcggctggc agaggcgcgg cagcgtgagc tgcagcggca ggagcttctc atgcagaagc ggctggcgat ggagtccaac aagatcctcc aggagcagca gqagatqqaq cqqcaaagga gaaaagaaat tgcccagaag gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg gaacctgagc tcgagcccgc agatgacctq gatggaggca cggaggagca gggagagcag gatttccgga aatatqaqqa aqqctttqac ccctactcta tgttcacccc agagcagatc atggggaagg atgtccggct cctacgcatc aagaaggagg gatccttaga cctggccctg gaaggcggtg tggactcccc cattgggaag gtggtcgttt ctgctgtgta tgagcgggga gctgctgagc ggcatggtgg cattgtgaaa ggggacgaga tcatggcaat caacggcaag attgtgacag actacaccct ggctgaggct gacgetgecc tgcagaagge ctggaatcag ggcggggact ggatcgacct tgtggttgcc gtotgocccc caaaggagta tgacgatgag otgacettet tgetgaagte caaaagggga aaccaaattc acgcgttagg aaacagtgag ctccqqccc acctcqtgaa cacaaagcct eggaceagee ttgagagagg ceacatgaca cacaceagat ggcateettg ggacetgaat ctatcaccca ggaatetcaa actccctttg gccctgaacc agggccagat aaqqaacaqc 1020 tcgggccact tttttgaagg ccaatgtgga ggaaagggag cagccagccg tttgggagaa 1080 gateteaagg atccagaete teatteettt cetetggece agtgaatttg gteteteeca gctttggggg actccttcct tgaaccctaa taagacccca ctqqaqtctc tctctccca 1200 tocctotect ofgecotorg ofctaattge tgccaqqatt qtcactocaa accttactet 1260 qaqctcatta ataaaataaa cagatttatt ttccagctta aaaaaa 1306

490

<210> 557 <211> 328

<212> PRT

<213> Homo Sapiens

<400> 557

Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Gln Glu Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu Leu Leu Pro Lys 55 Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp Asp Leu Asp Gly 85 90 Gly Thr Glu Glu Gln Gly Glu Gln Asp Phe Arg Lys Tyr Glu Glu Gly 105 Phe Asp Pro Tyr Ser Met Phe Thr Pro Glu Gln Ile Met Glv Lvs Asp Val Arg Leu Leu Arg Ile Lys Lys Glu Gly Ser Leu Asp Leu Ala Leu 135

```
Glu Gly Gly Val Asp Ser Pro Ile Gly Lys Val Val Val Ser Ala Val
                    150
                                         155
Tyr Glu Arg Gly Ala Ala Glu Arg His Gly Gly Ile Val Lys Gly Asp
                                    170
Glu Ile Met Ala Ile Asn Gly Lys Ile Val Thr Asp Tyr Thr Leu Ala
                                                     190
Glu Ala Asp Ala Ala Leu Gln Lys Ala Trp Asn Gln Gly Gly Asp Trp
                            200
Ile Asp Leu Val Val Ala Val Cys Pro Pro Lys Glu Tyr Asp Asp Glu
                        215
                                             220
Leu Thr Phe Leu Leu Lys Ser Lys Arg Gly Asn Gln Ile His Ala Leu
225
                                         235
Gly Asn Ser Glu Leu Arg Pro His Leu Val Asn Thr Lys Pro Arg Thr
                245
                                    250
Ser Leu Glu Arg Gly His Met Thr His Thr Arg Trp His Pro Trp Asp
Leu Asn Leu Ser Pro Arg Asn Leu Lys Leu Pro Leu Ala Leu Asn Gln
                            280
Gly Gln Ile Arg Asn Ser Ser Gly His Phe Phe Glu Gly Gln Cys Gly
                        295
                                             300
Gly Lys Gly Ala Ala Ser Arg Leu Gly Glu Asp Leu Lys Asp Pro Asp
                                         315
                                                             320
Ser His Ser Phe Pro Leu Ala Gln
                325
```

<210> 558

<211> 2289 <212> DNA

<213> Homo Sapiens

<400> 558

```
cetggccegg tegeggtege ggetetttee ageteetgge ageegggeac cegaaggaac
                                                                       60
gggtcgtgca acgacgcagc tggacctggc ccagccatgg accgaaaagt ggcccgagaa
                                                                      120
ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat
                                                                      180
gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctq
                                                                      240
gtcatcaatg aacccagccg totgcctctg tttgatgcca ttcggccgct gatcccactq
                                                                      300
aagcaccagg tggaatatga tcagctgacc ccccggcgct ccaggaagct gaaggaggtg
                                                                      360
cgtctggacc gtctgcaccc cgaaggcctc ggcctgagtg tgcgtggtgg cctggagttt
                                                                      420
ggctgtgggc tcttcatctc ccacctcatc aaaggcggtc aggcagacag cgtcgggctc
                                                                      480
caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg tacccatgag
                                                                      540
gaggtcatca acctcattcg aaccaagaaa actgtgtcca tcaaagtgag acacatcggc
                                                                      600
ctgatccccg tgaaaagctc tcctgatgag cccctcactt ggcagtatgt ggatcaqttt
                                                                      660
gtgtcggaat ctgggggcgt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag
                                                                      720
gagaagaagg tetteateag eetggtagge teeegaggee ttggetgeag cattteeage
                                                                      780
ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct
                                                                      840
gaggtgggat tggagatagg ggaccagatt gtcgaagtca atggcgtcga cttctctaac
                                                                      900
ctggatcaca aggaggctgt aaatgtgctg aaaaatagcc gcagcctgac catctccatt
gtagetgeag etggeeggga getgtteatg acagaceggg ageggetgge agaggegegg
                                                                     1020
cagcgtgagc tgcagcggca ggagcttctc atgcagaagc ggctggcgat ggagtccaac
                                                                     1080
aagatcctcc aggagcagca ggagatggag cggcaaagga gaaaagaaat tgcccaqaaq
                                                                     1140
gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag
                                                                     1200
aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttgcctaaa
                                                                     1260
accatcactg ctgaggtaca cccagtaccc cttcgcaagc caaagtatga tcagggagtg
                                                                     1320
gaacctgagc tcgagcccgc agatgacctg gatggaggca cggaggagca gggagagcag
                                                                     1380
ccacaggaga tgttgaagag gatggtggtt tatcaagaca gcattcaaga caagatttcc
                                                                     1440
```

```
ggaaatatga ggaaggcttt gacccctact ctatgttcac cccagagcag atcatgggga
                                                                    1500
aggatgtccg gctcctacgc atcaagaagg agggatcctt agacctggcc ctggaaggcg
gtgtggactc ccccattggg aaggtggtcg tttctgctgt gtatgagcgg ggagctgctg
                                                                    1620
ageggeatgg tggcattgtg aaaggggaeg agatcatgge aatcaaegge aagattgtga
cagactacac cctggctgag gctgacgctg ccctgcagaa ggcctggaat cagggcgggg
actggatcga ccttgtggtt gccgtctgcc ccccaaagga gtatgacgat gagctgacct
                                                                    1800
tettgetgaa gtecaaaagg ggaaaccaaa tteaegegtt aggaaacagt gageteegge
cccacctcgt gaacacaaag cctcggacca gccttgagag aggccacatg acacacacca
gatggcatcc ttgggacctg aatctatcac ccaggaatct caaactccct ttggccctga
                                                                    1980
accagggcca gataaggaac agctcgggcc acttttttga aggccaatgt ggaggaaagg
                                                                    2040
gagcagccag ccgtttggga gaagatctca aggatccaga ctctcattcc tttcctctgg
                                                                    2100
cccagtgaat ttggtctctc ccagctttgg gggactcctt ccttgaaccc taataaqacc
                                                                    2160
ccactggagt ctctctctc ccatccctct cctctgccct ctgctctaat tgctgccagg
                                                                    2220
attgtcactc caaaccttac tetgagetca ttaataaaat aaacagattt attttccage
                                                                    2280
ttaaaaaaa
                                                                    2289
```

<210> 559 <211> 481 <212> PRT

<213> Homo Sapiens

<400> 559

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu 10 Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu 40 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg 70 Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu 90 Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu 100 105 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu 120 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser 135 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val 150 155 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro 170 Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser 185 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys 200 Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys 215 Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His 230 235 Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp 250

Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys

260 265 270 Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile 275 280 Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln 315 Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu Gln Glu 325 330 Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu 340 345 Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu 360 Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu 375 380 Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg 395 Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp 405 410 Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Pro Gln Glu Met 425 Leu Lys Arg Met Val Val Tyr Gln Asp Ser Ile Gln Asp Lys Ile Ser 440 Gly Asn Met Arg Lys Ala Leu Thr Pro Thr Leu Cys Ser Pro Gln Ser 455 Arg Ser Trp Gly Arg Met Ser Gly Ser Tyr Ala Ser Arg Arg Arg Asp 465 470 Pro

<210> 560

<211> 2409

<212> DNA

<213> Homo Sapiens

<400> 560

cetggecegg tegeggtege ggetetttee ageteetgge ageegggeae eegaaggaae gggtcgtgca acgacgcagc tggacctggc ccagccatqq accqaaaaqt qqcccqagaa 120 ttccggcata aggtggattt tctgattgaa aatgatgcag agaaggacta tctctatgat 180 gtgctgcgaa tgtaccacca gaccatggac gtggccgtgc tcgtgggaga cctgaagctq 240 gtcatcaatg aacccagccg totgcototg tttgatgcca ttcggccgct gatcccactg 300 aagcaccagg tggaatatga tcagctgacc ccccggcgct ccaggaagct gaaggaggtg 360 egtetggace gtetgcacce egaaggeete ggeetgagtg tgegtggtgg eetggagttt 420 ggctgtgggc tcttcatctc ccacctcatc aaaggcggtc aggcagacag cgtcgggctc 480 caggtagggg acgagatcgt ccggatcaat ggatattcca tctcctcctg tacccatqaq 540 gaggteatea accteatteg aaccaagaaa actgtgteea teaaagtgag acacategge 600 ctgatececg tgaaaagete teetgatgag eeceteaett ggeagtatgt ggateagttt gtgtcggaat ctgggggcgt gcgaggcagc ctgggctccc ctggaaatcg ggaaaacaag 720 gagaagaagg tottcatcag cotggtaggc toccgaggcc ttggctgcag catttccage 780 ggccccatcc agaagcctgg catctttatc agccatgtga aacctggctc cctgtctgct gaggtgggat tggagatagg ggaccagatt gtcgaagtca atqqcqtcqa cttctctaac 900 ctggatcaca aggaggctgt aaatgtgctg aaaaatagcc gcagcctgac catctccatt 960 gtagctgcag ctggccggga gctgttcatg acagaceggg agcggctggc agaggcqcqq 1020 cagegtgage tgeageggea ggagettete atgeagaage ggetggegat ggaqtecaac 1080 aagatcetee aggagcagca ggagatggag eggcaaagga gaaaagaaat tgcccagaag 1140

gcagcagagg aaaatgagag ataccggaag gagatggaac agattgtaga ggaggaagag 1200 aagtttaaga agcaatggga agaagactgg ggctcaaagg aacagctact cttqcctaaa accatcactg ctgaggtaca cccagtaccc cttcqcaaqc caaaqtatqa tcaqqqaqtq qaacctgagc tcgagcccgc agatgacctg gatggaggca cggaggagca gggagagcag 1380 acattttgcc caagcccaca gcctccacga ggccctggcg tgtccaccat ctccaaacct gtcatggtcc accaggagcc caatttcatc tacaggccag ctgtgaaatc tgaagttctg ccacaggaga tgttgaagag gatggtggtt tatcaagaca qcattcaaga caaqatttcc 1560 ggaaatatga ggaaggettt gaeecetaet etatgtteae eecagageag ateatgggga aggatgtccg gctcctacgc atcaagaagg agggatcctt agacctggcc ctggaaggcq gtgtggactc ccccattggg aaggtggtcg tttctgctgt gtatgagcgg ggagctgctg 1740 ageggeatgg tggeattgtg aaaggggaeg agateatgge aateaacgge aagattgtga 1800 cagactacac cotggetgag getgacgetg coetgeagaa ggeetggaat cagggegggg actggatcga ccttgtggtt geegtetgee ceecaaagga gtatgaegat gagetgaeet 1920 tettgetgaa gtecaaaagg ggaaaccaaa tteacgegtt aggaaacagt gageteegge 1980 cccacctcgt gaacacaaag cctcggacca gccttgagag aggccacatg acacacaca gatggcatcc ttgggacctg aatctatcac ccaggaatct caaactccct ttggccctga 2100 accagggcca gataaggaac agctcgggcc acttttttga aggccaatgt ggaggaaagg 2160 gagcagccag ccgtttggga gaagatctca aggatccaga ctctcattcc tttcctctqq cccagtgaat ttggtctctc ccagctttgg gggactcctt ccttgaaccc taataagacc 2280 ccactggagt ctctctctc ccatccctct cctctgccct ctgctctaat tgctgccagg 2340 attgtcactc caaaccttac tctgagctca ttaataaaat aaacagattt attttccagc 2400 ttaaaaaaa 2409

<210> 561

<211> 521

<212> PRT

<213> Homo Sapiens

<400> 561

Met Asp Arg Lys Val Ala Arg Glu Phe Arg His Lys Val Asp Phe Leu Ile Glu Asn Asp Ala Glu Lys Asp Tyr Leu Tyr Asp Val Leu Arg Met Tyr His Gln Thr Met Asp Val Ala Val Leu Val Gly Asp Leu Lys Leu 40 Val Ile Asn Glu Pro Ser Arg Leu Pro Leu Phe Asp Ala Ile Arg Pro 55 Leu Ile Pro Leu Lys His Gln Val Glu Tyr Asp Gln Leu Thr Pro Arg 70 75 Arg Ser Arg Lys Leu Lys Glu Val Arg Leu Asp Arg Leu His Pro Glu Gly Leu Gly Leu Ser Val Arg Gly Gly Leu Glu Phe Gly Cys Gly Leu 105 Phe Ile Ser His Leu Ile Lys Gly Gly Gln Ala Asp Ser Val Gly Leu 120 Gln Val Gly Asp Glu Ile Val Arg Ile Asn Gly Tyr Ser Ile Ser Ser 135 Cys Thr His Glu Glu Val Ile Asn Leu Ile Arg Thr Lys Lys Thr Val 150 155 Ser Ile Lys Val Arg His Ile Gly Leu Ile Pro Val Lys Ser Ser Pro Asp Glu Pro Leu Thr Trp Gln Tyr Val Asp Gln Phe Val Ser Glu Ser 185 Gly Gly Val Arg Gly Ser Leu Gly Ser Pro Gly Asn Arg Glu Asn Lys

200

Glu Lys Lys Val Phe Ile Ser Leu Val Gly Ser Arg Gly Leu Gly Cys

```
215
Ser Ile Ser Ser Gly Pro Ile Gln Lys Pro Gly Ile Phe Ile Ser His
                    230
                                        235
Val Lys Pro Gly Ser Leu Ser Ala Glu Val Gly Leu Glu Ile Gly Asp
                245
                                    250
Gln Ile Val Glu Val Asn Gly Val Asp Phe Ser Asn Leu Asp His Lys
                                265
Glu Ala Val Asn Val Leu Lys Asn Ser Arg Ser Leu Thr Ile Ser Ile
        275
                            280
Val Ala Ala Ala Gly Arg Glu Leu Phe Met Thr Asp Arg Glu Arg Leu
                        295
                                            300
Ala Glu Ala Arg Gln Arg Glu Leu Gln Arg Gln Glu Leu Leu Met Gln
305
                    310
                                        315
Lys Arg Leu Ala Met Glu Ser Asn Lys Ile Leu Gln Glu Gln Glu Gl
                325
                                    330
Met Glu Arg Gln Arg Arg Lys Glu Ile Ala Gln Lys Ala Ala Glu Glu
                                345
Asn Glu Arg Tyr Arg Lys Glu Met Glu Gln Ile Val Glu Glu Glu Glu
                            360
Lys Phe Lys Lys Gln Trp Glu Glu Asp Trp Gly Ser Lys Glu Gln Leu
                        375
                                            380
Leu Leu Pro Lys Thr Ile Thr Ala Glu Val His Pro Val Pro Leu Arg
                    390
                                        395
Lys Pro Lys Tyr Asp Gln Gly Val Glu Pro Glu Leu Glu Pro Ala Asp
                405
                                    410
Asp Leu Asp Gly Gly Thr Glu Glu Gln Gly Glu Gln Thr Phe Cys Pro
            420
                                425
                                                    430
Ser Pro Gln Pro Pro Arg Gly Pro Gly Val Ser Thr Ile Ser Lys Pro
                            440
Val Met Val His Gln Glu Pro Asn Phe Ile Tyr Arg Pro Ala Val Lys
                        455
                                            460
Ser Glu Val Leu Pro Gln Glu Met Leu Lys Arg Met Val Val Tyr Gln
                    470
                                        475
Asp Ser Ile Gln Asp Lys Ile Ser Gly Asn Met Arg Lys Ala Leu Thr
               485
                                    490
Pro Thr Leu Cys Ser Pro Gln Ser Arg Ser Trp Gly Arg Met Ser Gly
            500
                                505
Ser Tyr Ala Ser Arg Arg Arg Asp Pro
                            520
      <210> 562
      <211> 1445
     <212> DNA
      <213> Homo Sapiens
      <400> 562
ctccggcagg gagtcctagc gcagactttg cggttcatgg agagtctctg ggagacaggc
acctgcggac gctgcagata agttacgacg cactgaaaga tgaaaattct aagctgagaa
```

ctceggcagg gadtoctage gcagacttt eggttcatgg agagtctctg ggagacagge 60
acctgcggag gadtoctage gcagacttt eggttcatgg agagtctctg ggagacagge 120
gaaagctgaa tgaggttcag agcttctctg aagctcaaca agaaatggtg aggacgcttg 180
agcggaagtt agaagcaaaa atgatcaagg aggaaagcga ctaccacgac ctggagtcgg
tggttcagca ggtggagcag aacctggage tgatgaccaa acggctgta aaggcagaa 300
accacgtcgt gaaactaaaa caggaatca gtttgctca ggcgcaggt ctcaactcc 360
agcgagagaa tgaagccctg cggtgcggc aggtgcag cctgaccgtg gtaagcaga 420
acgccgagt ggcctgcag aacctccggg tggtcatgaa cctgaccgtg gtatcatcatca 480

```
agcaactggt ttccggagct gagacactga atcttgttgc cgaaatcctt aaatctatag
acagaatttc tgaagttaaa gacgaggagg aagactcttg aggacccctg ggtgttctca
gcatgaagct ccgtgtatac cctgaggtca ccaccgctcg atctaaatgt gcagttgtgt
                                                                      660
cettaaatat geagtettea eecagagtaa agtgttgate geaagagtee agtgtegtge
                                                                      720
cctcagccag ttcttggcca ccacaatggg agcagccctg gccgagttgt ctctgtggtt
totatgcage cettettggc gaaatteetg egatettata gattetaatg agetettgga
                                                                      840
agacattgtc ataaaagcca gtgattttaa gaaaaagagt ggttctggaa tcaatgtttt
                                                                      900
ccagtcccat cccagaacat cagttgtaag ataagtacaa ttggttgtcc ttgatttcat
aagtagaaca aacactaaat gtgcctctga gatggccacc ccgggcaggg acctgtgcct
                                                                     1020
teegeegatg cteagggete cetetggete cegggteact ettgtggeee eagtgggtgg
                                                                     1080
tecetgeagt catggcetga gtgcgcaggg gccaccgcgt ggctgctgct gtcctcctcc
                                                                     1140
ggggaccacg ggggaacaag gtcacacctt ccgtgctgtg aagetgtcca gatgtgcctc
                                                                     1200
tttqqctggg ggttttggtg gacgtttcaa gtggcatttt gtacaatgca ggttagaatt
                                                                     1260
caggaatttc aagtatgtgc ccgggtntgt caggtcccag ttgcctttnt gacggccccc
                                                                     1320
ctcagaggga cggcgatgag cactaaatgc ttttttgant attttcctat agattttttt
                                                                     1380
taaaactttt ttttcctcct gttccaattg atagetttet tatttaataa attctqtaqt
                                                                     1440
tcacc
                                                                     1445
```

<210> 563 <211> 192 <212> PRT

<213> Homo Sapiens

<400> 563

Pro Ala Gly Ser Pro Ser Ala Asp Phe Ala Val His Gly Glu Ser Leu 1 10 Gly Asp Arg His Leu Arg Thr Leu Gln Ile Ser Tyr Asp Ala Leu Lys 25 Asp Glu Asn Ser Lys Leu Arg Arg Lys Leu Asn Glu Val Gln Ser Phe Ser Glu Ala Gln Thr Glu Met Val Arg Thr Leu Glu Arg Lys Leu Glu Ala Lys Met Ile Lys Glu Glu Ser Asp Tyr His Asp Leu Glu Ser Val 70 75 Val Gln Gln Val Glu Gln Asn Leu Glu Leu Met Thr Lys Arg Ala Val 85 90 Lys Ala Glu Asn His Val Val Lys Leu Lys Gln Glu Ile Ser Leu Leu 105 Gln Ala Gln Val Ser Asn Phe Gln Arg Glu Asn Glu Ala Leu Arg Cys 120 Gly Gln Gly Ala Ser Leu Thr Val Val Lys Gln Asn Ala Asp Val Ala 135 Leu Gln Asn Leu Arg Val Val Met Asn Ser Ala Gln Ala Ser Ile Lys 145 155 Gln Leu Val Ser Gly Ala Glu Thr Leu Asn Leu Val Ala Glu Ile Leu 170 Lys Ser Ile Asp Arg Ile Ser Glu Val Lys Asp Glu Glu Glu Asp Ser

<210> 564 <211> 1226 <212> DNA

<213> Homo Sapiens

<400> 564

185

190

```
ctgggccgcg aggcgcggag cttgggagcg gagcccaggc cgtgccgcgc ggcgccatga
                                                                      60
agggcaagga ggagaaggag ggcggcgcac ggctgggcgc tggcggcgga agccccqaga
agagecegag egegeaggag etcaaggage agggeaateg tetgttegtg ggeegaaagt
acceggagge ggeggeetge taeggeegeg egateacceg gaaccegetg gtggeegtgt
                                                                      240
attacaccaa cogggccttg tgctacctga agatgcagca gcacgagcag gccctggccg
                                                                      300
actgccggcg cgccctggag ctggacgggc agtctgtgaa ggcgcacttc ttcctggggc
agtgccagct ggagatggag agctatgatg aggccatcgc caatctgcag cgagcttaca
                                                                      420
gcctggccaa ggagcagcgg ctgaacttcg gggacgacat ccccagcgct cttcgaatcg
cgaagaagaa gcgctggaac agcattgagg agcggcgcat ccaccaggag agcgagctgc
actectacet etecaggete attgeegegg agegtgagag ggagetggaa gagtgeeage
                                                                      600
gaaaccacga gggtgatgag gacgacagcc acgtccgggc ccagcaggcc tgcattgagg
                                                                      660
ccaagcacga caagtacatg geggacatgg acgagetttt ttetcaggtg gatgagaaga
                                                                      720
ggaagaagcg agacatcccc gactacctgt gtggcaagat cagctttgag ctgatgcqqq
                                                                      780
agccgtgcat cacgcccagt ggcatcacct acgaccgcaa ggacatcgag gagcacctgc
                                                                      840
agegtgtggg teattttgac eeggtgaceg ggageeecet gaeecaggaa cagtteatee
ccaacttggc tatgaaggag gttattgacg cattcatctc tgagaatggc tgggtggagg
                                                                      960
actactgagg ttccctgccc tacctggcgt cctggtccag gggagccctg ggcagaagcc
                                                                     1020
cccggcccct aaacatagtt tatgtttttg gccaccccga ccgcttcccc caagttctgc
                                                                     1080
tgttggactc tggactgttt cccctctcag catcgctttt gctgggccqt qattqtcccc
                                                                    1140
tttgtggget ggaaaagcag gtgagggtgg getgggetga ggecattgee gecactatet
                                                                    1200
gtgtaataaa atccgtgagc acgaaa
                                                                     1226
```

<210> 565 <211> 303 <212> PRT

<213> Homo Sapiens

<400> 565

Met Lys Gly Lys Glu Glu Lys Glu Gly Gly Ala Arg Leu Gly Ala Gly Gly Gly Ser Pro Glu Lys Ser Pro Ser Ala Gln Glu Leu Lys Glu Gln Gly Asn Arg Leu Phe Val Gly Arg Lys Tyr Pro Glu Ala Ala Ala Cys Tyr Gly Arg Ala Ile Thr Arg Asn Pro Leu Val Ala Val Tyr Tyr Thr Asn Arg Ala Leu Cys Tyr Leu Lys Met Gln Gln His Glu Gln Ala Leu 70 Ala Asp Cys Arg Arg Ala Leu Glu Leu Asp Gly Gln Ser Val Lys Ala His Phe Phe Leu Gly Gln Cys Gln Leu Glu Met Glu Ser Tyr Asp Glu 105 Ala Ile Ala Asn Leu Gln Arg Ala Tyr Ser Leu Ala Lys Glu Gln Arg 120 Leu Asn Phe Gly Asp Asp Ile Pro Ser Ala Leu Arg Ile Ala Lys Lys 135 Lys Arg Trp Asn Ser Ile Glu Glu Arg Arg Ile His Gln Glu Ser Glu 150 155 Leu His Ser Tyr Leu Ser Arg Leu Ile Ala Ala Glu Arg Glu Arg Glu 165 170 Leu Glu Glu Cys Gln Arg Asn His Glu Gly Asp Glu Asp Asp Ser His 185 Val Arg Ala Gln Gln Ala Cys Ile Glu Ala Lys His Asp Lys Tyr Met 200 Ala Asp Met Asp Glu Leu Phe Ser Gln Val Asp Glu Lys Arg Lys

```
215
Arg Asp Ile Pro Asp Tyr Leu Cys Gly Lys Ile Ser Phe Glu Leu Met
225
                    230
                                        235
Arg Glu Pro Cys Ile Thr Pro Ser Gly Ile Thr Tyr Asp Arg Lys Asp
                245
Ile Glu Glu His Leu Gln Arg Val Gly His Phe Asp Pro Val Thr Gly
                                265
Ser Pro Leu Thr Gln Glu Gln Phe Ile Pro Asn Leu Ala Met Lys Glu
                            280
Val Ile Asp Ala Phe Ile Ser Glu Asn Gly Trp Val Glu Asp Tyr
    290
                        295
```

<210> 566

<211> 1857 <212> DNA

<213> Homo Sapiens

```
<400> 566
gtgagggget cetttgggca ggggtagtgt ttggtgtece tgtettgegt gatattgaca
                                                                       60
aactgaagct ttcctgcacc actggactta aggaanagtg tactcgtagg cggacagctt
                                                                      120
tagtggeegg eeggeegete teateceeeg taaggageag agteetttgt aetgaeeaaq
atgagcaaca tctacatcca ggagcctccc acgaatggga aggttttatt gaaaactaca
                                                                      240
gctggagata ttgacataga gttgtggtcc aaagaagctc ctaaagcttg cagaaatttt
                                                                      300
atcccaactt tgtttggaag cttattatga caataccatt tttcatagag ttgtgcctgg
                                                                      360
tttcatagtc caaggeggag atcctactgg cacagggagt ggtggagagt ctatctatgg
                                                                      420
agegecatte aaagatgaat tteatteaeg gttgegtttt aateggagag gaetggttge
                                                                      480
catggcaaat getggttete atgataatgg cacccaettt ttetteacae tgggtegage
                                                                      540
agatgaactt aacaataagc ataccatctt tggaaaggtt acaggggata cagtatataa
catgttgcga ctgtcagaag tagacattga tgatgacgaa agaccacata atccacacaa
                                                                      660
aataaaaagc tgtgaggttt tgtttaatcc ttttgatgac atcattccaa gggaaattaa
                                                                      720
aaggetgaaa aaagagaaac cagaggagga agtaaagaaa ttgaaaccca aaggeacaaa
                                                                      780
aaattttagt ttactttcat ttggagagga agctgaggaa gaagaagagg aagtaaatcg
                                                                      840
agttagtcag agcatgaagg gcaaaagcaa aagtagtcat gacttgctta aggatgatcc
                                                                      900
acatctcagt tetgttccag ttgtagaaag tgaaaaaggt gatgcaccag atttagttga
                                                                      960
tgatggagaa gatgaaagtg cagagcatga tgaatatatt gatggtgatg aaaagaacct
                                                                     1020
gatgagagaa agaattgcca aaaaattaaa aaaggacaca agtgcgaatg ttaaatcagc
                                                                     1080
tggagaagga gaagtggaga agaaatcagt cagccgcagt gaagagctca gaaaagaagc
                                                                     1140
aagacaatta aaacgggaac tottagcago aaaacaaaaa aaagtagaaa atgcagcaaa
                                                                     1200
acaagcagaa aaaagaagtg aagaggaaga agcccctcca gatggtgctg ttgccgaata
                                                                     1260
cagaagagaa aagcaaaagt atgaagcttt gaggaagcaa cagtcaaaga agggaacttc
                                                                     1320
cegggaagat cagaccettg cactgetgaa ceagtttaaa tetaaactea eteaageaat
                                                                     1380
tgctgaaaca cctgaaaatg acattcctga aacagaagta gaagatgatg aaggatggat
                                                                     1440
gtcacatgta cttcagtttg aggataaaag cagaaaagtg aaagatgcaa gcatgcaaga
                                                                     1500
ctcagataca tttgaaatct atgatcctcg gaatccagtg aataaaagaa ggagggaaga
                                                                     1560
aagcaaaaag ctgatgagag agaaaaaaga aagaagataa aatgagaata atgataacca
                                                                     1620
gaacttgctg gaaatgtgcc tacaatggcc ttgtaacagc cattgttccc aacagcatca
                                                                     1680
cttaggggtg tgaaaagaag tatttttgaa cctgttgtct ggttttgaaa aacaattatc
                                                                     1740
ttgttttgca aattgtggaa tgatgtaagc aaatgctttt ggttactggt acatgtgttt
                                                                     1800
tttcctagct gaccttttat attgctaaat ctgaaataaa ataactttcc ttccaaa
                                                                     1857
```

<210> 567

<211> 372

<212> PRT

<213> Homo Sapiens

```
<400> 567
Met Ala Asn Ala Gly Ser His Asp Asn Gly Thr His Phe Phe Phe Thr
               5
                                 10
Leu Gly Arg Ala Asp Glu Leu Asn Asn Lys His Thr Ile Phe Gly Lys
                             25
Val Thr Gly Asp Thr Val Tyr Asn Met Leu Arg Leu Ser Glu Val Asp
                          40
Ile Asp Asp Asp Glu Arg Pro His Asn Pro His Lys Ile Lys Ser Cys
                      55
                                         60
Glu Val Leu Phe Asn Pro Phe Asp Asp Ile Ile Pro Arg Glu Ile Lys
                  70
                                     75
Arg Leu Lys Lys Glu Lys Pro Glu Glu Glu Val Lys Lys Leu Lys Pro
              85
                                  90
Lys Gly Thr Lys Asn Phe Ser Leu Leu Ser Phe Gly Glu Glu Ala Glu
                             105
           100
Glu Glu Glu Glu Val Asn Arg Val Ser Gln Ser Met Lys Gly Lys
                         120
Ser Lys Ser Ser His Asp Leu Leu Lys Asp Asp Pro His Leu Ser Ser
                     135
Val Pro Val Val Glu Ser Glu Lys Gly Asp Ala Pro Asp Leu Val Asp
                  150
                                     155
Asp Gly Glu Asp Glu Ser Ala Glu His Asp Glu Tyr Ile Asp Gly Asp
              165
                                 170
Glu Lys Asn Leu Met Arg Glu Arg Ile Ala Lys Lys Leu Lys Lys Asp
                             185
                                                190
Thr Ser Ala Asn Val Lys Ser Ala Gly Glu Gly Glu Val Glu Lys Lys
 195
                          200
Ser Val Ser Arg Ser Glu Glu Leu Arg Lys Glu Ala Arg Gln Leu Lys
                      215
Arg Glu Leu Leu Ala Ala Lys Gln Lys Lys Val Glu Asn Ala Ala Lys
                 230
                                     235
Gln Ala Glu Lys Arg Ser Glu Glu Glu Glu Ala Pro Pro Asp Gly Ala
              245
                                  250
Val Ala Glu Tyr Arg Arg Glu Lys Gln Lys Tyr Glu Ala Leu Arg Lys
           260
                              265
Gln Gln Ser Lys Lys Gly Thr Ser Arg Glu Asp Gln Thr Leu Ala Leu
       275
                          280
Leu Asn Gln Phe Lys Ser Lys Leu Thr Gln Ala Ile Ala Glu Thr Pro
                      295
                                         300
Glu Asn Asp Ile Pro Glu Thr Glu Val Glu Asp Asp Glu Gly Trp Met
                  310
                                     315
Ser His Val Leu Gln Phe Glu Asp Lys Ser Arg Lys Val Lys Asp Ala
                                 330
Ser Met Gln Asp Ser Asp Thr Phe Glu Ile Tyr Asp Pro Arg Asn Pro
                            345
Val Asn Lys Arg Arg Glu Glu Ser Lys Lys Leu Met Arg Glu Lys
       355
                         360
```

<210> 568

Lys Glu Arg Arg 370

> <211> 1537 <212> DNA

<213> Homo Sapiens

```
<400> 568
geogegege gateggtegt tacegegagg egetggtgge etteaggetg gaeggegegg
                                                                       60
gtcagccctg gttcgccggc ttctgggtct ttgaacagcc gcgatgtcga tcttcacccc
caccaaccag atccgcctaa ccaatqtqqc cqtqqtacgq atqaaqcqtq ccqqqaaqcq
                                                                      180
cttcgaaatc gcctgctaca aaaacaaggt cgtcggctgg cggagcggcg tggaaaaaga
                                                                      240
cctcgatgaa gttctgcaga cccactcagt gtttgtaaat gtttctaaag gtcaggttgc
                                                                      300
caaaaaqgaa gatctcatca gtgcgtttgg aacagatgac caaactgaaa tctgtaaqca
                                                                      360
gattttgact aaaggagaag ttcaagtatc agataaagaa agacacacac aactggagca
                                                                      420
gatgtttagg gacattgcaa ctattgtggc agacaaatgt gtgaatcctg aaacaaagag
                                                                      480
accatacacc gtgatcctta ttgagagagc catgaaggac atccactatt cggtgaaaac
                                                                      540
caacaagagt acaaaacagc aggetttgga agtgataaag cagttaaaag agaaaatqaa
                                                                      600
gatagaacgt gctcacatga agcttcggtt catccttcca gtcaatgaag qcaaqaactg
                                                                      660
aaagaaaagc tcaagccact gatcaaggtc atagaaagtg aagattatgg ccaacagtta
                                                                      720
gaaatcgtat gtctgattga cccgggctgc ttccgagaaa ttgatgagct aataaaaaag
                                                                      780
gaaactaaag gcaaaggttc tttggaagta ctcaatctga aagatgtaga agaaqqaqat
                                                                      840
gagaaatttg aatgacaccc atcaatctct tcacctctaa aacactaaaq tqtttccqtt
tccgacggca ctgtttcatg tctgtggtct gccaaatact tgcttaaact atttgacatt
                                                                      960
ttctatcttt gtgttaacag tggacacagc aaggctttcc tacataagta taataatgtq
                                                                     1020
ggaatgattt ggttttaatt ataaactggg gtctaaatcc taaagcaaaa ttgaaactcc
                                                                     1080
aagatgcaaa gtccagagtg gcattttgct actctgtctc atgccttgat agctttccaa
                                                                     7140
aatgaaagtt acttgangca gctcttgtgg gtgaaaagtt atttgtacag tagagtaaga
                                                                     1200
ttattagggg tatgtctata caacaaaagg gggggtcttt cctaaaaaag aaaacatatg
atgetteatt tetaettaat ggaacttgtg ttetgagggt cattatggta tegtaatgta
                                                                     1320
aagcttggat gatgttcctg attatttgag gaacagatat aggaaaattg tgccggaatt
                                                                     1380
acctttcatt gaacatgctg ccataaatta ggttattttt ggttaaaaaa taaaagtcaa
ttatttttaa tttttaaagt ttataatata tattaatata ggtaaaattg tatqtaatca
                                                                     1500
ataaaaccaa ttttatgttt attaaactta aaaaaaa
                                                                     1537
```

<210> 569 <211> 210 <212> PRT

<213> Homo Sapiens

<400> 569

Ala Ala Arg Arg Ser Val Val Thr Ala Arg Arg Trp Trp Pro Ser Gly Trp Thr Ala Arg Val Ser Pro Gly Ser Pro Ala Ser Gly Ser Leu Asn 25 Ser Arg Asp Val Asp Leu His Pro His Gln Pro Asp Pro Pro Asn Gln 40 45 Cys Gly Arg Gly Thr Asp Glu Ala Cys Arg Glu Ala Leu Arg Asn Arg 55 Leu Leu Gln Lys Gln Val Val Gly Trp Arg Ser Gly Val Glu Lys Asp 70 75 Leu Asp Glu Val Leu Gln Thr His Ser Val Phe Val Asn Val Ser Lys 90 Gly Gln Val Ala Lys Lys Glu Asp Leu Ile Ser Ala Phe Gly Thr Asp 105 Asp Gln Thr Glu Ile Cys Lys Gln Ile Leu Thr Lys Gly Glu Val Gln 120 Val Ser Asp Lys Glu Arg His Thr Gln Leu Glu Gln Met Phe Arg Asp 135 140 Ile Ala Thr Ile Val Ala Asp Lys Cys Val Asn Pro Glu Thr Lys Arg 155 Pro Tyr Thr Val Ile Leu Ile Glu Arg Ala Met Lys Asp Ile His Tyr

```
165
                                    170
Ser Val Lys Thr Asn Lys Ser Thr Lys Gln Gln Ala Leu Glu Val Ile
                                185
Lys Gln Leu Lys Glu Lys Met Lys Ile Glu Arg Ala His Met Lys Leu
                            200
Arg Phe
   210
      <210> 570
      <211> 1211
      <212> DNA
      <213> Homo Sapiens
      <400> 570
accatctttg gaaaggttac aggggtatac agtatataac atgttgcgac tqtcaqaaqt
agacattgat gatgacgaaa gaccacataa tccacacaaa ataaaaagct gtgaggtttt
                                                                      120
gtttaatcct tttgatgaca tcattccaag ggaaattaaa aggctgaaaa aagagaaacc
                                                                      180
aqaqqaqqaa gtaaagaaat tgaaacccaa aggcacaaaa aattttagtt tactttcatt
tggagaggaa gctgaggaag aagaggagga agtaaatcga gttagtcaga gcatgaaggg
                                                                      300
caaaagcaaa agtagtcatg acttgcttaa ggatgatcca catctcagtt ctgttccagt
                                                                      360
tgtagaaagt gaaaaaggtg atgcagcaga tttagttgat qatqqaqaag atgaaagtgc
                                                                      420
agagcatgat gaatatattg atggtgatga aaagaacctg atgagagaaa gaattgccaa
                                                                      480
aaaattaaaa aaggacacaa gtgcgaatgt taaatcagct ggagaaggag aagtggagaa
                                                                      540
gaaatcagtc agccgcagtg aagagctcag aaaagaagca agacaattaa aacgggaact
                                                                      600
cttagcagca gaacaaaaaa aagtagaaaa tgcagcaaaa caagcagaaa aaaqaaqtga
                                                                      660
agaggaagaa gcccctccag atggtgctgt tgccgaatac agaaqagaaa aqcaaaaqta
                                                                      720
tgaagetetg aggaageaac agteaaagaa gggaacttee egggaagate agaceettge
                                                                      780
actgctgaac cagtttaaat ctaaactcac tcaagcaatt gctgaaacgc ctgaaaatga
                                                                      840
catteetgaa acagaagtag aagatgatga aggatggatg teacatgtae tteagtttga
                                                                      900
ggataaaagc agaaaagtga aagatgcaag catgcaagac tcagatacat ttgaaatcta
                                                                      960
tgatcctcgg aatccagtga ataaaagaag gagggaagaa agcaaaaagc tgatgagaga
                                                                     1020
gaaaaaagaa agaagataaa atgagaataa tgataaccag aacttgctgg aaatgtgcct
acaatggcct tgtaacagcc attgttccca acagcatcac ttaggggtgt gaaaagaagt
                                                                     1140
attittgaac ctgttgtctg gttttgaaaa acaattatct tgttttgcaa attgtggaat
                                                                     1200
gatgtaagca a
                                                                     1211
      <210> 571
      <211> 354
      <212> PRT
      <213> Homo Sapiens
      <400> 571
Pro Ser Leu Glu Arg Leu Gln Gly Tyr Thr Val Tyr Asn Met Leu Arg
Leu Ser Glu Val Asp Ile Asp Asp Asp Glu Arg Pro His Asn Pro His
Lys Ile Lys Ser Cys Glu Val Leu Phe Asn Pro Phe Asp Asp Ile Ile
Pro Arg Glu Ile Lys Arg Leu Lys Lys Glu Lys Pro Glu Glu Glu Val
                        55
Lys Lys Leu Lys Pro Lys Gly Thr Lys Asn Phe Ser Leu Leu Ser Phe
                    70
                                        75
Gly Glu Glu Glu Glu Glu Glu Glu Val Asn Arg Val Ser Gln
Ser Met Lys Gly Lys Ser Lys Ser Ser His Asp Leu Leu Lys Asp Asp
```

			100					105					110		
		115					120		Glu			125		-	
	130					135			Glu		140			_	
Tyr 145	Ile	Asp	Gly	Asp	Glu 150	Lys	Asn	Leu	Met	Arg 155	Glu	Arg	Ile	Ala	Lys 160
Lys	Leu	Lys	Lys	Asp 165	Thr	Ser	Ala	Asn	Val 170	Lys	Ser	Ala	Gly	Glu 175	Gly
			180					185	Ser				190	-	
		195					200		Ala			205	-	•	
	210					215			Arg		220				
Pro 225	Pro	Asp	Gly	Ala	Val 230	Ala	Glu	Tyr	Arg	Arg 235	Glu	Lys	Gln	Lys	Tyr 240
Glu	Ala	Leu	Arg	Lys 245	Gln	Gln	Ser	Lys	Lys 250	Gly	Thr	Ser	Arg	Glu 255	Asp
Gln	Thr	Leu	Ala 260	Leu	Leu	Asn	Gln	Phe 265	Lys	Ser	Lys	Leu	Thr 270	Gln	Ala
Ile	Ala	Glu 275	Thr	Pro	Glu	Asn	Asp 280	Ile	Pro	Glu	Thr	Glu 285	Val	Glu	Asp
	290					295			Gln		300				_
305					310				Ser	315					320
Asp	Pro	Arg	Asn	Pro 325	Val	Asn	Lys	Arg	Arg 330	Arg	Glu	Glu	Ser	Lys 335	Lys
Leu	Met	Arg	Glu 340	Lys	Lys	Glu	Arg	Arg 345	Ile	Leu	Pro	Val	Asn 350	Glu	Gly
Lys	Asn														

<210> 572 <211> 604 <212> DNA <213> Homo Sapiens

(213) Homo Saprens

<400> 572

```
ccttcggcaa aaaattttgg tcccaacttt ttgttccatt ccaaaagggc ttaccttcat
                                                                       60
tccctttagc aacagggccc ccaagaagct cccgttcatt cacccttacc ttggccccca
                                                                      120
ggttggaccc ccaaaggctc ccttacccca aagtgggtgg ttgaataaat cttctcagtt
                                                                      180
ccctggctcc caaggcccat tgaagaagat tgtacaaggc gtgcctcaag taccccqaqt
                                                                      240
ggaaacagaa gcacctgcct cacttcaage cgtggctgca cccggagcag agecegttge
                                                                      300
cgagcctggc gctgtcggag ctgtcggtgc agcatgcgga ctcactggag aacatcgacg
                                                                      360
agagegeggt ggeegagage agagaggage ggatgggegg egegggegge gagggeageg
                                                                      420
acgacgacac ettcacetga geeegeaceg ettcagggac ggagacagga eegggegage
                                                                      480
ectggggegg eggeegetee tgeaetttet ecceteecce acceggeace tggtggcace
                                                                      540
gggccaggcc caggcgggtg ctgcagcctg gctggacaga gcccaataaa cggatcccac
                                                                      600
agcc
                                                                      604
```

<210> 573 <211> 195 <212> PRT

<213> Homo Sapiens

<400> 573 Leu Arg Gln Lys Ile Leu Val Pro Thr Phe Cys Ser Ile Pro Lys Gly Leu Thr Phe Ile Pro Phe Ser Asn Arg Ala Pro Lys Lys Leu Pro Phe Ile His Pro Tyr Leu Gly Pro Gln Val Gly Pro Pro Lys Ala Pro Leu 40 Pro Gln Ser Gly Trp Leu Asn Lys Ser Ser Gln Phe Pro Gly Ser Gln 60 Gly Pro Leu Lys Lys Ile Val Gln Gly Val Pro Gln Val Pro Arg Val 70 Glu Thr Glu Ala Pro Ala Ser Leu Gln Ala Val Ala Ala Pro Gly Ala 90 Glu Pro Val Ala Glu Pro Gly Ala Val Gly Ala Val Gly Ala Ala Cys 105 Gly Leu Thr Gly Glu His Arg Arg Glu Arg Gly Gly Arg Glu Gln Arg 120 Gly Ala Asp Gly Arg Arg Gly Arg Gly Gln Arg Arg Arg His Leu 135 His Leu Ser Pro His Arg Phe Arg Asp Gly Asp Arg Thr Gly Arg Ala 150 155 Leu Gly Arg Arg Pro Leu Leu His Phe Leu Pro Ser Pro Thr Arg His

165 170 175 Leu Val Ala Pro Gly Gln Ala Gln Ala Gly Ala Ala Ala Trp Leu Asp

Leu vai Ala Pro Gly Gin Ala Gin Ala Gly Ala Ala Ala Trp Leu Asp 180 185 190 Arg Ala Gin

195

<210> 574 <211> 742 <212> DNA

<213> Homo Sapiens

<400> 574

120

180

240

300

360

420

540

600

660

720

742

<210> 575

<211> 232 <212> PRT

<213> Homo Sapiens

<400> 575 His Gln Gly Pro Leu Asp Ala Glu Thr Glu Val Gly Ala Asp Arg Cys Thr Ser Thr Ala Tyr Gln Glu Gln Arg Pro Gln Val Glu Gln Val Gly Lys Val Ala Pro Leu Ser Pro Gly Leu Pro Ala Met Gly Gly Pro Gly Pro Gly Pro Cys Glu Asp Pro Ala Gly Ala Gly Gly Ala Gly Ala Gly Gly Ser Glu Pro Leu Val Thr Val Thr Val Gln Cys Ala Phe Thr Val 70 75 Ala Leu Arg Ala Gly Arg Gly Ala Asp Leu Ser Ser Leu Arg Ala Leu 90 Leu Gly Gln Ala Phe Leu His Gln Ala Gln Leu Gly Gln Phe Ser Tyr 105 Leu Ala Pro Gly Glu Asp Gly His Trp Val Pro Ile Pro Glu Glu Glu 120 Ser Leu Gln Arg Ala Trp Gln Asp Ala Ala Ala Cys Pro Arg Gly Leu 135 Gln Leu Gln Cys Arg Gly Ala Gly Gly Arg Pro Val Leu Tyr Gln Val 150 155 Val Ala Gln His Arg Tyr Ser Ala Gln Gly Pro Glu Asp Leu Gly Phe 170 Arg Gln Gly Asp Thr Val Asp Val Leu Cys Glu Val Asp Gln Ala Trp Leu Glu Gly His Cys Asp Gly Arg Ile Gly Ile Phe Pro Lys Cys Phe 200 Val Val Pro Ala Gly Pro Arg Met Ser Gly Ala Pro Gly Arg Leu Pro 215 Arg Ser Gln Gln Gly Asp Gln Pro 230

<210> 576 <211> 1087

<212> DNA

<213> Homo Sapiens

<400> 576

aagatgatgc ctagtaaatt acagaagaac aaacagagac tgcgaaacga tcctctcaat 60 caaaataagg gtaaaccaga cttgaataca acattgccaa ttagacaaac aqcatcaatt 120 ttcaaacaac cggtaaccaa agtcacaaat catcctagta ataaagtgaa atcagaccca caacgaatga atgaacagcc acgtcagctt ttctqqqaqa aqaqqctaca aqqacttagt 240 gcatcagatg taacagaaca aattataaaa accatggaac tacccaaagg tettcaagga 300 gttggtccag gtagcaatga tgagaccctt ttatctgctg ttgccagtgc tttgcacaca 360 agetetgege caatcacagg geaagtetee getgetgtgg aaaagaacee tgetgtttgg 420 cttaacacat ctcaacccct ctgcaaagct tttattgtca cagatgaaga catcaggaaa caggaagagc gagtacagca agtacgcaag aaattggaag aagcactgat ggcagacatc ttgtcgcgag ctgctgatac agaagagatg gatattgaaa tggacagtgg agatgaagcc taagaatatg atcaggtaac tttcgaccga ctttccccaa gagaaaattc ctagaaattg 660 aacaaaaatg tttccactgg cttttgcctg taagaaaaaa aatgtacccg agcacataga 720 getttttaat ageactaacc aatgeetttt tagatgtatt tttgatgtat atatetatta 780 ttcaaaaaat catgtttatt ttgaqtccta qqacttaaaa ttaqtctttt qtaatatcaa 840 gcaggaccct aagatgaagc tgagcttttg atgccaggtg caatttactg gaaatgtagc 900 acttacgtaa aacatttgtt teecccacag ttttaataag aacagatcag gaattetaaa 960 taaatttccc agttaaagat tattgtgact tcactgtata taaacatatt tttatacttt 1020

attgaaaggg gacacctgta cattetteca teqteactgt aaagacaaat aaatgattat 1080 attcaca 1087 <210> 577 <211> 200 <212> PRT <213> Homo Sapiens <400> 577 Lys Met Met Pro Ser Lys Leu Gln Lys Asn Lys Gln Arg Leu Arg Asn Asp Pro Leu Asn Gln Asn Lys Gly Lys Pro Asp Leu Asn Thr Thr Leu 25 Pro Ile Arg Gln Thr Ala Ser Ile Phe Lys Gln Pro Val Thr Lys Val 40 Thr Asn His Pro Ser Asn Lys Val Lys Ser Asp Pro Gln Arg Met Asn Glu Gln Pro Arg Gln Leu Phe Trp Glu Lys Arg Leu Gln Gly Leu Ser 75 Ala Ser Asp Val Thr Glu Gln Ile Ile Lys Thr Met Glu Leu Pro Lys 90 Gly Leu Gln Gly Val Gly Pro Gly Ser Asn Asp Glu Thr Leu Leu Ser 105 110 Ala Val Ala Ser Ala Leu His Thr Ser Ser Ala Pro Ile Thr Gly Gln 115 120 Val Ser Ala Ala Val Glu Lys Asn Pro Ala Val Trp Leu Asn Thr Ser 135 140 Gln Pro Leu Cys Lys Ala Phe Ile Val Thr Asp Glu Asp Ile Arg Lys 155 Gln Glu Glu Arg Val Gln Gln Val Arg Lys Leu Glu Glu Ala Leu 165 170 Met Ala Asp Ile Leu Ser Arg Ala Ala Asp Thr Glu Glu Met Asp Ile 185 Glu Met Asp Ser Gly Asp Glu Ala 195 200 <210> 578 <211> 2569 <212> DNA <213> Homo Sapiens <400> 578 aagagtaaaa gctactcttt cagagagaaa aataggagat tcatgtgaca aagatttgcc 60 totgaaattt tgtgagttoc cacagaagac tataatgoot ggatttaaaa caactgtata 120 tgtttctcat ataaatgacc tttcagactt ttatgttcaa ctaatagaag atgaagctga 180 aattagtcat ctttcagaga gattaaacag tgttaaaaca aqqcccqaat attatgtagg 240 tocacctttg caaagaggag atatgatatg tgctgttttc ccagaagata atttatggta 300 tcgtgctgtg atcaaggagc aacaacccaa tgaccttctc tctgtgcagt ttatagatta 420

tggcaatgtt tctgtggttc atactaacaa aataggtagg cttgaccttg ttaatgcaat attgccgggg ttgtgcattc attgctcctt gcagggattt gaggttcctg acaataaaaa 480 ttctaagaaa atgatgcatt acttttccca acggaccagc gaggctgcaa taagatgtga 540 atttgttaaa tttcaagaca qatqqqaaqt tattcttqct qatqaacatq qqatcatagc 600 agatgatatg attagcaggt atgctctcag tgaaaaatct caagtagaac tttctaccca 660 agtaattaaa agtgccagtt caaagtctgt taacaaatca gacattgaca cttcagtatt 720 tottaactgg tataatccag aaaaaaaaat qataaqaqot tatqccactq tqataqatgg 780

```
acctgagtac ttttggtgtc agtttgctga tacggagaaa cttcagtgtt tagaagtaga
                                                                      840
agtacagact gctggagaac aggtagcaga caggagaaat tgtatcccat gtccttatat
tggagatcct tgtatagtaa gatacagaga agatggacat tattataggg cacttatcac
                                                                      960
taatatttgt gaagattatc ttgtatctgt caggettgtg gactttggaa acattgaaga
                                                                     1020
ctgtgtggac ccaaaagcac tctgggccat tccttctgaa cttctgtegg ttcccatgca
                                                                     1080
agcctttcca tgttgcctct cagggtttaa catttcagaa ggattatgtt ctcaagaggg
                                                                    1140
aaatqactat ttctatgaaa taataacaga agatgtgttg gaaataacaa tactagaaat
                                                                    1200
cagaagggat gtttgtgata tccctttagc aattgttgac ttgaaaagca aaggtaaaag
tattaatgag aaaatggaga aatattctaa gactggtatt aaaagtgctc ttccctatga
                                                                    1320
aaatattgac tcagagataa agcagactct tgggtcctac aatcttgatg taggacttaa
                                                                    1380
gaaattaagt aataaagctg tacaaaataa aatatatatg gaacaacaga cagatgagct
tgctgaaata actgaaaaag atgtaaacat tattggaacc aaaccaagta acttccqtga
                                                                    1500
ccctaaaact gataacattt gtgaagggtt tgaaaacccc tgcaaagata aaattgatac
                                                                    1560
tgaggaactg gaaggtgaat tagagtgcca tetggttgac aaagcagagt ttgatgataa
                                                                    1620
atacctgatt acaggattta acacattact accacatgct aatgaaacaa aggagatact
                                                                    1680
agaactgaat tcacttgagg tgccgctttc tcctgatgat gaatcaaaag aattcttaga
                                                                    1740
actggaatct attgagttac agaattctct ggtggtggat gaagaaaaag gggagctaag
cccggtgcca ccgaatgtgc cactctccca agagtgtgtc acaaaaggcg ccatggagct
atttacactg cagetteete teagetgtga agetgagaaa cagecagaac tagaactace
tacageceag etgeetttag atgacaagat ggateetttg tetttaggag ttagtcagaa
agcacaggaa tccatgtgta ctgaggacat gagaaagtca agttgtgtag aatcttttga
                                                                    2040
tgaccagcgc aggatgtcat tgcatctaca tggagcagat tgtgatccta aaacacagaa
                                                                    2100
tgaaatgaat atatgtgaag aagaatttgt agagtataaa aacagggatg ccatttcggc
                                                                    2160
attgatgcct ttttctctga ggaagaaagc agtgatggaa gcaagcacaa taatggttta
                                                                     2220
ccagatcata tttcagntca attacagaac acctacactn tgaaagcctt tactgttqqa
                                                                    2280
tctaaatgtg ttgtgtggtc aagtntaaga aacanatggt ctaaatgtga gattttagaa
                                                                    2340
acagctgaag aaggnacaag ggttttgaac ctttcaaatg gtatggagga gatagtgaac
cctgagaatg tctggaatgn nanacccaaa ttggataaga gtccacctga gaaaaggggt
                                                                    2460
ttggaggtga tggagattta accgtggatn tatagctgtg gccaatcagt cagaagctgc
                                                                    2520
centgaacaa gtggcatett acgcagacca acagagtatt tgagaaaat
                                                                    2569
```

<210> 579 <211> 752 <212> PRT

<213> Homo Sapiens

<400> 579

Arg Val Lys Ala Thr Leu Ser Glu Arg Lys Ile Gly Asp Ser Cys Asp 10 Lys Asp Leu Pro Leu Lys Phe Cys Glu Phe Pro Gln Lys Thr Ile Met 25 30 Pro Gly Phe Lys Thr Thr Val Tyr Val Ser His Ile Asn Asp Leu Ser 40 Asp Phe Tyr Val Gln Leu Ile Glu Asp Glu Ala Glu Ile Ser His Leu 55 Ser Glu Arg Leu Asn Ser Val Lys Thr Arg Pro Glu Tyr Tyr Val Gly 75 Pro Pro Leu Gln Arg Gly Asp Met Ile Cys Ala Val Phe Pro Glu Asp 90 Asn Leu Trp Tyr Arg Ala Val Ile Lys Glu Gln Gln Pro Asn Asp Leu 105 Leu Ser Val Gln Phe Ile Asp Tyr Gly Asn Val Ser Val Val His Thr 120 Asn Lys Ile Gly Arg Leu Asp Leu Val Asn Ala Ile Leu Pro Gly Leu

135

WO 99/04265 PCT/US98/14679

```
Cys Ile His Cys Ser Leu Gln Gly Phe Glu Val Pro Asp Asn Lys Asn
145
                   150
                                       155
Ser Lys Lys Met Met His Tyr Phe Ser Gln Arg Thr Ser Glu Ala Ala
               165
                                   170
Ile Arg Cys Glu Phe Val Lys Phe Gln Asp Arg Trp Glu Val Ile Leu
                               185
Ala Asp Glu His Gly Ile Ile Ala Asp Asp Met Ile Ser Arg Tyr Ala
                           200
Leu Ser Glu Lys Ser Gln Val Glu Leu Ser Thr Gln Val Ile Lys Ser
                      215
                                          220
Ala Ser Ser Lys Ser Val Asn Lys Ser Asp Ile Asp Thr Ser Val Phe
                   230
                                      235
Leu Asn Trp Tyr Asn Pro Glu Lys Lys Met Ile Arg Ala Tyr Ala Thr
               245
                                   250
Val Ile Asp Gly Pro Glu Tyr Phe Trp Cys Gln Phe Ala Asp Thr Glu
            260
                              265
Lys Leu Gln Cys Leu Glu Val Glu Val Gln Thr Ala Gly Glu Gln Val
                           280
Ala Asp Arg Arg Asn Cys Ile Pro Cys Pro Tyr Ile Gly Asp Pro Cys
                       295
Ile Val Arg Tyr Arg Glu Asp Gly His Tyr Tyr Arg Ala Leu Ile Thr
                   310
                                       315
Asn Ile Cys Glu Asp Tyr Leu Val Ser Val Arg Leu Val Asp Phe Gly
               325
                                   330
Asn Ile Glu Asp Cys Val Asp Pro Lys Ala Leu Trp Ala Ile Pro Ser
           340
                               345
Glu Leu Leu Ser Val Pro Met Gln Ala Phe Pro Cys Cys Leu Ser Gly
                           360
                                              365
Phe Asn Ile Ser Glu Gly Leu Cys Ser Gln Glu Gly Asn Asp Tyr Phe
                       375
                                          380
Tyr Glu Ile Ile Thr Glu Asp Val Leu Glu Ile Thr Ile Leu Glu Ile
                   390
                                      395
Arg Arg Asp Val Cys Asp Ile Pro Leu Ala Ile Val Asp Leu Lys Ser
               405
                                   410
Lys Gly Lys Ser Ile Asn Glu Lys Met Glu Lys Tyr Ser Lys Thr Gly
           420
                               425
Ile Lys Ser Ala Leu Pro Tyr Glu Asn Ile Asp Ser Glu Ile Lys Gln
                           440
Thr Leu Gly Ser Tyr Asn Leu Asp Val Gly Leu Lys Lys Leu Ser Asn
                       455
                                           460
Lys Ala Val Gln Asn Lys Ile Tyr Met Glu Gln Gln Thr Asp Glu Leu
465
                   470
                                       475
Ala Glu Ile Thr Glu Lys Asp Val Asn Ile Ile Gly Thr Lys Pro Ser
                485
                                  490
Asn Phe Arg Asp Pro Lys Thr Asp Asn Ile Cys Glu Gly Phe Glu Asn
                               505
Pro Cys Lys Asp Lys Ile Asp Thr Glu Glu Leu Glu Gly Glu Leu Glu
                           520
                                               525
Cys His Leu Val Asp Lys Ala Glu Phe Asp Asp Lys Tyr Leu Ile Thr
                       535
                                           540
Gly Phe Asn Thr Leu Leu Pro His Ala Asn Glu Thr Lys Glu Ile Leu
                   550
                                       555
Glu Leu Asn Ser Leu Glu Val Pro Leu Ser Pro Asp Asp Glu Ser Lys
                565
                                   570
Glu Phe Leu Glu Leu Glu Ser Ile Glu Leu Gln Asn Ser Leu Val Val
```

585 590 Asp Glu Glu Lys Gly Glu Leu Ser Pro Val Pro Pro Asn Val Pro Leu 600 Ser Gln Glu Cys Val Thr Lys Gly Ala Met Glu Leu Phe Thr Leu Gln Leu Pro Leu Ser Cys Glu Ala Glu Lys Gln Pro Glu Leu Glu Leu Pro 635 Thr Ala Gln Leu Pro Leu Asp Asp Lys Met Asp Pro Leu Ser Leu Gly 650 Val Ser Gln Lys Ala Gln Glu Ser Met Cys Thr Glu Asp Met Arg Lys 660 665 Ser Ser Cys Val Glu Ser Phe Asp Asp Gln Arg Arg Met Ser Leu His 675 680 Leu His Gly Ala Asp Cys Asp Pro Lys Thr Gln Asn Glu Met Asn Ile Cys Glu Glu Glu Phe Val Glu Tyr Lys Asn Arg Asp Ala Ile Ser Ala 710 715 Leu Met Pro Phe Ser Leu Arg Lys Lys Ala Val Met Glu Ala Ser Thr 725 730 Ile Met Val Tyr Gln Ile Ile Phe Gln Asn Tyr Arg Thr Pro Thr Leu 740 745

<210> 580 <211> 2077 <212> DNA

<213> Homo Sapiens

<400> 580

ctgttgattt tttggagaaa tatgggagaa acagtggaat atttttatga catttttagg 60 aaatcacctg gcttggttgg tagtcccaca ctgactttcc ttatqataat tctacaqatq 120 gaggtgactc gagcagtgat gaggataaag aataacatga aactcctqtg gaagtaqaac tcatgactca ggttqaccaa gaggatatca ctcttcagag tqgcagagat qaactaaatq 240 aggagctcat tcaggaagaa agctctgaag acgaaggaga atatgaagag gttagaaaag 300 atcaggattc tgttggtgaa atgaaggatg aaggggaaga gacttaaatt atcctgatac 360 taccattgac ttgtctcacc ttcaacccca aaggtccatc cagaaattgg cttcaaaaga 420 ggaatettet aattetagtg acagtaaate acagageegg agacatttgt cagecaagga 480 aagaagggaa atgaaaaaga aaaaacttcc aagtgactca ggagatttag aagcgttaga 540 gggaaaggat aaagaaaaag aaagtactgt acacattgaa actcatcaga acacaagcaa aaatgttgcg gctgtgcagc caatgaaacg aggacaaaag agtaaaatga aaaaaatgaa 660 agaaaaatac aaagaccagg atgaagaaga ccgtgaactt atcatgaagt tgctggggtc 720 tgcaggttca aacaaagaag aaaaagggaa gaagggaag aaaggaaaaa caaaggacga 780 acctgtgaag aaacagcccc agaaacctag aggtggacag agggtctctg acaacattaa 840 gaaagaaact ccgttccttg aggttataac tcatgagtta caagactttg ctgtagatga 900 tocacatgat gacaaggaag agcaagatot qqatcaacaq qqaaatqaqq aaaacctatt 960 tgattctttg acaggccagc cacatcctga agatgtacta ctgtttgcca ttccaatatg 1020 tgccccttac accaccatga caaactacaa atataaagtg aaacttactc ctggagtqca 1080 gaaaaaggga aaagctgcaa aaacagcctt gaatagtttc atgcattcca aagaagcaac agcaagagaa aaagacttat teegeagegt aaaqqacaca gatttateaa qaaacattee 1200 tggcaaagtg aaaagtgtct gcacccaatc ttctgaacgt aaaaaggaaa tagctgaaat 1260 gaaattctaa aatatttgag aagagccaat tttatagcct tttggaagtt caaagatgaa agcaccatgt atcaggattt ccgcattata aaaatgaact aaacattgcc ttgctatatt caccaaaagg acttaattct tgtttttttc ccagttttat ataqaqqaaa cactqtctat 1440 gataggattt ccaaaagtat ttgtggacag ttaaatgcta attatataca tctgtagtta 1500 1560 aactgaacag tgaagtggct tgattgctta aactattgac ttggtaagtc tactgtatat 1620

1680

1860

1980

2040

2077

aacatctaat atatatatta caggccaaat gaactaaaca ttgccttqct atattcacca aaaggactta attettgttt ttttcccagt tttatataga ggaaacacta tgataggatt toctaaagta tttgtggaca gttaaatgct aattatatac atctgtagtt attctacatt ttcttgaaat ttgagaggtt aataccaagt attcatttca tgatgtaaag aaactgaaca gtgaagtggc ttgattgctt aaactattga cttggtaagt ctactgtata taacatctaa tatatatata ttataggcca gctacaaggg gtttaaatat ttaggattqt gtcttqaaaa ctaagtattg gagtggattt tcttctgctt tcattgatac ttgtcagaaa aaaatattag accaaaatgt aaaatataag taataattct catgaaa <210> 581 <211> 312 <212> PRT <213> Homo Sapiens <400> 581 Arg Gly Arg Asp Leu Asn Tyr Pro Asp Thr Thr Ile Asp Leu Ser His 10 Leu Gln Pro Gln Arg Ser Ile Gln Lys Leu Ala Ser Lys Glu Glu Ser Ser Asn Ser Ser Asp Ser Lys Ser Gln Ser Arg Arg His Leu Ser Ala 4.0 Lys Glu Arg Arg Glu Met Lys Lys Lys Leu Pro Ser Asp Ser Gly 55 Asp Leu Glu Ala Leu Glu Gly Lys Asp Lys Glu Lys Glu Ser Thr Val 70 75 His Ile Glu Thr His Gln Asn Thr Ser Lys Asn Val Ala Ala Val Gln 85 90 Pro Met Lys Arg Gly Gln Lys Ser Lys Met Lys Lys Met Lys Glu Lys 105 Tyr Lys Asp Gln Asp Glu Glu Asp Arg Glu Leu Ile Met Lys Leu Leu 120 Gly Ser Ala Gly Ser Asn Lys Glu Glu Lys Gly Lys Lys Gly Lys Lys 135 Gly Lys Thr Lys Asp Glu Pro Val Lys Lys Gln Pro Gln Lys Pro Arg 150 155 Gly Gly Gln Arg Val Ser Asp Asn Ile Lys Lys Glu Thr Pro Phe Leu 170 165 175 Glu Val Ile Thr His Glu Leu Gln Asp Phe Ala Val Asp Asp Pro His 185 Asp Asp Lys Glu Glu Gln Asp Leu Asp Gln Gln Gly Asn Glu Glu Asn 200

Tyr Lys Val Lys Leu Thr Pro Gly Val Gln Lys Lys Gly Lys Ala Ala 245 250 Lys Thr Ala Leu Asn Ser Phe Met His Ser Lys Glu Ala Thr Ala Arg 265 Glu Lys Asp Leu Phe Arg Ser Val Lys Asp Thr Asp Leu Ser Arg Asn 280

Leu Phe Asp Ser Leu Thr Gly Gln Pro His Pro Glu Asp Val Leu Leu 215

Phe Ala Ile Pro Ile Cys Ala Pro Tyr Thr Thr Met Thr Asn Tyr Lys

220

235

Ile Pro Gly Lys Val Lys Ser Val Cys Thr Gln Ser Ser Glu Arg Lys 295 300

Lys Glu Ile Ala Glu Met Lys Phe 305

230

310

<210> 582 <211> 3309 <212> DNA

<213> Homo Sapiens

<400> 582

cgcagaccga gacccgaggc ggaggcggac cgcgagccgg ccatgtcggt ggtggggttg 60 gacgtgggct cgcagagctg ctacatcgcg gtagcccggg ccgggggcat cgagaccatc 120 gccaatgagt tcagcgaccg gtgcaccccg tcagtcatat catttggatc aaaaaataga acaatcqqaq ttqcaqccaa aaatcaqcaa atcactcatq caaacaatac qqtqtctaac 240 ttcaaaaqat ttcatqqccq aqcattcaat qaccccttca ttcaaaaqqa qaaqqaaaac 300 ttgagttacg atttggttcc attgaaaaat ggtggagttg gaataaaggt aatgtacatg 360 ggtgaagaac atctatttag tgtggagcag ataacagcca tgttgttgac taaqctqaaq 420 qaaactqctq aaaacaqcct caaqaaacca qtaacaqatt qtqttatttc aqtccctcc 480 ttetttacaq atqctqaqaq qeqatctqtq ttaqatqctq cacaqattqt tqqcctaaac 540 tqtttaaqac ttatqaatga catgacagct gttgctttga attacggaat ttataagcag 600 gateteceaa geetggatga gaaacetegg atagtggttt ttgttqatat qqqacattea 660 qcttttcaaq tgtctgcttq tgcttttaac aaqqqaaaat tqaaqqtact qqqaacaqct 720 tttgatcctt tcttaggagg aaaaaacttc gatgaaaagt tagtggaaca tttttgtgca 780 gaatttaaaa ctaagtacaa gttggatgca aaatccaaaa tacgagcact cctacgtctg 840 tatcaggaat gtgaaaaact gaaaaagcta atgageteta acageacaga cettecactq 900 aatatcgaat gctttatgaa tgataaagat gtttccggaa agatgaacag gtcacaattt 960 gaagaactct gtgctgaact tctgcaaaag atagaagtac ccctttattc actgttggaa 1020 caaactcatc tcaaagtaga agatgtgagt gcagttgaga ttgttggagg cgctacacga 1080 attccaqctq tqaaqqaaaq aattqccaaa ttctttqqaa aaqatattaq cacaacactc 1140 aatgcagatg aagcagtagc cagaggatgt gcattacagt gtgcaatact ttccccqqca 1200 tttaaagtta gagaattttc cgtcacagat gcagttcctt ttccaatatc tctgatctqq 1260 aaccatgatt cagaagatac tgaaggtgtt catgaagtct ttagtcgaaa ccatqctqct 1320 cctttctcca aagttctcac ctttctgaga agggggcctt ttgagctaga agctttctat 1380 totgatocco aaggagttoo atatocaqaa goaaaaatag qooqotttqt aqttoaqaat 1440 gtttctgcac agaaaqatqq agaaaaatct aqaqtaaaaq tcaaaqtqcq aqtcaacacc 1500 catqqcattt tcaccatctc tacqqcatct atqqtqqaqa aaqtcccaac tqaqqaqaat 1560 gaaatgtott otgaagotga catggagtgt otgaatcaga gaccaccaga aaacccagac 1620 actgataaaa atgtccagca agacaacagt gaagetggaa cacageeeca ggtacaaact gatgotcaac aaacetcaca gtotccccot toacetgaac ttacctcaga agaaaacaaa 1740 atcccaqatq ctgacaaaqc aaatqaaaaa aaaqttqacc aqcctccaqa aqctaaaaaq cccaaaataa aggtggtgaa tgttgagctg cctattgaag ccaacttggt ctggcagtta 1860 gggaaagacc ttcttaacat gtatattgag acagagggta agatgataat gcaagataaa 1920 ttggaaaaag aaaggaatga tgctaaaaat gcagttgagg aatatgtgta tgagttcaga 1980 gacaagctgt gtggaccata tgaaaaattt atatgtgagc aggatcatca aaattttttg 2040 agacteetea cagaaactga agactggetg tatgaagaag gagaggacca agetaaacaa 2100 gcatatgttg acaagttgga agaattaatg aaaattggca ctccagttaa agttcggttt 2160 caggaaqctq aagaacggcc aaaaatqttt qaaqaactaq qacaqaqqct qcaqcattat 2220 gccaagatag cagctgactt cagaaataag gatgagaaat acaaccatat tgatgagtct 2280 gaaatgaaaa aagtggagaa gtctgttaat gaagtgatgg aatggatgaa taatgtcatq 2340 aatgeteagg etaaaaagag tettgateag gateeagttg tacgtqetea qgaaattaaa 2400 acaaaaatca aggaattgaa caacacatqt qaacccqttq taacacaacc qaaaccaaaa 2460 attgaatcac ccaaactgga aagaactcca aatggcccaa atattgataa aaaggaagaa 2520 gatttagaag acaaaaacaa ttttggtgct gaacctccac atcagaatgg tgaatgttac 2580 cctaatgaga aaaattctgt taatatggac ttggactaga taaccttaaa ttggcctatt 2640 ccttcaatta ataaaatatt tttgccatag tatgtgactc tacataacat actgaaacta 2700 tttatatttt cttttttaag gatatttaga aattttgtgt attatatgga aaaagaaaaa 2760 aagcttaagt ctgtagtctt tatgatccta aaagggaaaa ttgccttggt aactttcaga 2820 ttcctgtgga attgtgaatt catactaagc tttctgtgca gtctcaccat ttgcatcact 2880 gaggatgaaa ctgacttttg tcttttggag aaaaaaaact gtactqcttq ttcaaqaqqq 2940 ctgtgattaa aatotttaag catttgttcc tgccaaggta gttttcttgc attttgctct ccattcagca tgtgtgtggg tgtggatgtt tataaacaag actaagtctg acttcataag ggctttctaa aaccatttct gtccaagaga aaatgacttt ttgctttgat attaaaaatt 3120 caatgagtaa aacaaaagct agtcaaatgt gttagcagca tgcagaacaa aaactttaaa 3240 tcctgttgta actgattgtg aacactttta tgagctttaa aataaagttc atcttatggt 3300 gtcatttct 3309

<210> 583 <211> 872 <212> PRT

<213> Homo Sapiens

<400> 583

Arg Arg Pro Arg Pro Glu Ala Glu Ala Asp Arg Glu Pro Ala Met Ser Val Val Gly Leu Asp Val Gly Ser Gln Ser Cys Tyr Ile Ala Val Ala Arg Ala Gly Gly Ile Glu Thr Ile Ala Asn Glu Phe Ser Asp Arg Cys 40 Thr Pro Ser Val Ile Ser Phe Gly Ser Lys Asn Arg Thr Ile Gly Val 55 Ala Ala Lys Asn Gln Gln Ile Thr His Ala Asn Asn Thr Val Ser Asn 70 Phe Lys Arg Phe His Gly Arg Ala Phe Asn Asp Pro Phe Ile Gln Lys 90 Glu Lys Glu Asn Leu Ser Tyr Asp Leu Val Pro Leu Lys Asn Gly Gly 105 Val Gly Ile Lys Val Met Tyr Met Gly Glu Glu His Leu Phe Ser Val 120 Glu Gln Ile Thr Ala Met Leu Leu Thr Lys Leu Lys Glu Thr Ala Glu 135 140 Asn Ser Leu Lys Lys Pro Val Thr Asp Cys Val Ile Ser Val Pro Ser 150 155 Phe Phe Thr Asp Ala Glu Arg Arg Ser Val Leu Asp Ala Ala Gln Ile 165 170 Val Gly Leu Asn Cys Leu Arg Leu Met Asn Asp Met Thr Ala Val Ala 185 Leu Asn Tyr Gly Ile Tyr Lys Gln Asp Leu Pro Ser Leu Asp Glu Lys 195 Pro Arg Ile Val Val Phe Val Asp Met Gly His Ser Ala Phe Gln Val 215 Ser Ala Cys Ala Phe Asn Lys Gly Lys Leu Lys Val Leu Gly Thr Ala 230 235 Phe Asp Pro Phe Leu Gly Gly Lys Asn Phe Asp Glu Lys Leu Val Glu 250 His Phe Cys Ala Glu Phe Lys Thr Lys Tyr Lys Leu Asp Ala Lys Ser 265 Lys Ile Arg Ala Leu Leu Arg Leu Tyr Gln Glu Cys Glu Lys Leu Lys 280 Lys Leu Met Ser Ser Asn Ser Thr Asp Leu Pro Leu Asn Ile Glu Cys 295 Phe Met Asn Asp Lys Asp Val Ser Gly Lys Met Asn Arg Ser Gln Phe 310 315

Glu Glu Leu Cys Ala Glu Leu Leu Gln Lys Ile Glu Val Pro Leu Tyr

325 330 Ser Leu Leu Glu Gln Thr His Leu Lys Val Glu Asp Val Ser Ala Val 340 345 Glu Ile Val Gly Gly Ala Thr Arg Ile Pro Ala Val Lys Glu Arg Ile 360 Ala Lys Phe Phe Gly Lys Asp Ile Ser Thr Thr Leu Asn Ala Asp Glu 375 380 Ala Val Ala Arg Gly Cys Ala Leu Gln Cys Ala Ile Leu Ser Pro Ala 390 395 Phe Lys Val Arg Glu Phe Ser Val Thr Asp Ala Val Pro Phe Pro Ile 405 410 Ser Leu Ile Trp Asn His Asp Ser Glu Asp Thr Glu Gly Val His Glu 420 -425 Val Phe Ser Arg Asn His Ala Ala Pro Phe Ser Lys Val Leu Thr Phe 440 Leu Arg Arg Gly Pro Phe Glu Leu Glu Ala Phe Tyr Ser Asp Pro Gln 455 460 Gly Val Pro Tyr Pro Glu Ala Lys Ile Gly Arg Phe Val Val Gln Asn 470 475 Val Ser Ala Gln Lys Asp Gly Glu Lys Ser Arg Val Lys Val Lys Val 485 490 Arg Val Asn Thr His Gly Ile Phe Thr Ile Ser Thr Ala Ser Met Val 505 500 Glu Lys Val Pro Thr Glu Glu Asn Glu Met Ser Ser Glu Ala Asp Met 520 Glu Cys Leu Asn Gln Arg Pro Pro Glu Asn Pro Asp Thr Asp Lys Asn 535 540 Val Gln Gln Asp Asn Ser Glu Ala Gly Thr Gln Pro Gln Val Gln Thr 550 555 Asp Ala Gln Gln Thr Ser Gln Ser Pro Pro Ser Pro Glu Leu Thr Ser 565 570 Glu Glu Asn Lys Ile Pro Asp Ala Asp Lys Ala Asn Glu Lys Lys Val 585 Asp Gln Pro Pro Glu Ala Lys Lys Pro Lys Ile Lys Val Val Asn Val 600 605 Glu Leu Pro Ile Glu Ala Asn Leu Val Trp Gln Leu Gly Lys Asp Leu 615 620 Leu Asn Met Tyr Ile Glu Thr Glu Gly Lys Met Ile Met Gln Asp Lys 630 635 Leu Glu Lys Glu Arg Asn Asp Ala Lys Asn Ala Val Glu Glu Tyr Val 645 650 Tyr Glu Phe Arg Asp Lys Leu Cys Gly Pro Tyr Glu Lys Phe Ile Cys 665 Glu Gln Asp His Gln Asn Phe Leu Arg Leu Leu Thr Glu Thr Glu Asp 680 Trp Leu Tyr Glu Glu Gly Glu Asp Gln Ala Lys Gln Ala Tyr Val Asp 695 700 Lys Leu Glu Glu Leu Met Lys Ile Gly Thr Pro Val Lys Val Arg Phe 710 715 Gln Glu Ala Glu Glu Arg Pro Lys Met Phe Glu Glu Leu Gly Gln Arg 725 730 Leu Gln His Tyr Ala Lys Ile Ala Ala Asp Phe Arg Asn Lys Asp Glu 745 Lys Tyr Asn His Ile Asp Glu Ser Glu Met Lys Lys Val Glu Lys Ser 760

WO 99/04265

```
Val Asn Glu Val Met Glu Trp Met Asn Asn Val Met Asn Ala Gln Ala
                        775
Lys Lys Ser Leu Asp Gln Asp Pro Val Val Arg Ala Gln Glu Ile Lys
                    790
                                        795
Thr Lys Ile Lys Glu Leu Asn Asn Thr Cys Glu Pro Val Val Thr Gln
                                    810
Pro Lys Pro Lys Ile Glu Ser Pro Lys Leu Glu Arg Thr Pro Asn Gly
                                825
Pro Asn Ile Asp Lys Lys Glu Glu Asp Leu Glu Asp Lys Asn Asn Phe
                            840
Gly Ala Glu Pro Pro His Gln Asn Gly Glu Cys Tyr Pro Asn Glu Lys
                                             860
Asn Ser Val Asn Met Asp Leu Asp
865
                    870
```

<210> 584 <211> 2918 <212> DNA

<213> Homo Sapiens

```
<400> 584
ataactggag ctcgcgcgcc tgcaggtcga cactagtgga tccaaaqaat tcqqcacqaq
                                                                     60
gtgacgacaa cagggacaag gactccgaga agaccaagag gtggtccaag cccaqqaagc
                                                                    120
getecetgat ggagatggag gggaaggagg atgeeettta aggtgetgaa gtgeatgtae
                                                                    180
tgtggacact cctttgagtc cttgcaggac ctcagcgtcc acatgatcaa aaccaagcat
                                                                    240
taccagaaag tgcctctgaa ggagccagtg ccaqccatca ccaaactggt ccctccacc
                                                                    300
aaaaageggg egetteagga eetggegeee eeetgeteee etgageeage aggaatggee
                                                                    360
gcagaggtgg ccctgagtga gtcagccaag gatcagaaag cagcgaaccc gtacgtcacq
                                                                   420
cecaataacc getatggeta ceagaatgge geeagetaca cetggeagtt tgaggeeege
                                                                    480
aaggegeaga teeteaagtg catggagtgt ggeageteee aegacaeget geageagete
                                                                    540
accgcccaca tgatggtcac cgggcacttc ctgaaagtga ccacctcggc ttctaagaag
                                                                    600
660
cecaecacec acaegegget geeggeetee ageateaaaa ageageeega eteteeegeg
                                                                    720
gggtccacga cttctgaaga aaagaaagag ccagagaagg agaagccgcc tgtggctggc
                                                                    780
gacgcggaga agatcaagga ggagagtqaq qacaqcttqq aqaaatttqa qcccaqcacc
                                                                    840
ctgtacccgt acctgcgtga ggaggacctg gacgacagcc ccaagggagg gctqqacatt
                                                                    900
etcaagteee tggagaatac egteteeacg gecattagea aageteagaa tggtgegeee
                                                                   960
teatggggtg getaceceag catecatgea gectaceage teeegggeae egtgaageea
                                                                   1020
ctgccggcgg ccgtgcagag cgtgcaggtg cagccgtcct atgctggcgg cgtgaagtcg
                                                                   1080
etgtetteeg eegageacaa egeceteetg cacteeceag ggageeteae geececaceg
                                                                   1140
cacaagagca acgtgtctgc catggaggag ctggtggaga aggtcacggg caaggtcaac
                                                                   1200
atcaagaagg aggagagacc ccctgagaag gagaagaget ccctggccaa ggctgcgtcc
                                                                   1260
cccatagcaa aagagaataa agatttcccg aaaacggagg aagtcagcgg caaaccacag
                                                                   1320
aagaagggcc ctgaggccga gacttgggaa gccaaaaaagg agggaccgct ggacgttcac
accccaaatg gcacagagcc tctcaaagca aaggtcacca acggctgtaa caacctgggq
                                                                   1440
atcatcatgg accactcacc ggagecttcc ttcatcaacc cgctgagcgc tttgcagtcc
                                                                   1500
atcatgaaca cccacctggg caaggtgtcc aagcccgtga gtccctcgct ggacccqctq
                                                                   1560
gegatgetgt acaagatcag caacagcatg etggacaage eggtgtacee egecacecet
                                                                   1620
gtgaagcagg ccgatgccat cgaccgctac tattatgaaa acagcgacca gcccattgac
                                                                   1680
ttaaccaagt ccaagaacaa gccgctggtg tccagcgtgg ctgattcggt ggcatcacct
                                                                  1740
ctgcgggaga gcgcactcat ggacatctcc gacatggtga aaaacctcac aggccgcctg
                                                                  1800
acgcccaagt cetecacgee etecacagtt teagagaagt cegatgetga tggcagcage
                                                                  1860
tttgaggagg cgttggacga gctgtcaccg gtccacaaga ggaagggccg gcagtccaac
                                                                   1920
tggaacccgc agcaccttct catcctgcag gcccagttcg cctcgagctt gcgggagacc
                                                                   1980
acagaaggca agtacatcat gtcggacttg ggcccgcagg agagggtgca catctcgaag
                                                                   2040
```

tttactgggc tetecatgac caccatcage cactggctgg ccaatgtgaa qtaccaqttq 2100 aggaggacag ggggaacgaa attoctaaag aacctggaca cagggcatco tqttttcttt tgcaacgatt gtgcctctca gttcagaact gcttctacat acataaqtca tttqqaqaca 2220 cacttgggct tcagcctgaa ggatctctcc aagctgccac tcaatcagat tcaagaacag 2280 cagaatgttt cgaaagtcct caccaacaaa actctgggcc cactgggggc caccgaggaa 2340 gacttgggct ccacattcca atgtaagctc tgcaaccgga cttttgcgaa gcaaqcacqc 2400 agtcaaactg caccttagta agacccacgg caagtctccc gaggaccacc tgatctatgt 2460 gactgagttg gagaaacagt agcgtccagg tatgcaagag accgcggaac attgcactaa 2520 acgtcgtcga gctgcactag gcatggcctg agcctctgaa atcagtcttt cctttgttgc tggcccgcct ctctggacct tggttttcct acacatattt tgtatattta tatgctttct 2640 gtccgatctg tgcatgttat ttttcttttt ccgtgagtca aagtctqacc tttattttca 2700 acatctgttt ttggtgttaa gctatctttt gtaggaaata gtggggcaca ctactcagag acattattta gcagtaaaga aagacacaaa taacaatgat aaaaagacat cctaaaatgg 2820 tgaagttgcc atgacaataa aggtcataga acctggtagt gtcaaattta accetttgag 2880 gactgtaatt gcatttctgt gcctttcact tgaaaaaa 2918

<210> 585

<211> 687

<212> PRT

<213> Homo Sapiens

<400> 585

Met Ala Ala Glu Val Ala Leu Ser Glu Ser Ala Lys Asp Gln Lys Ala 10 15 Ala Asn Pro Tyr Val Thr Pro Asn Asn Arg Tyr Gly Tyr Gln Asn Gly 20 Ala Ser Tyr Thr Trp Gln Phe Glu Ala Arg Lys Ala Gln Ile Leu Lys 35 40 Cys Met Glu Cys Gly Ser Ser His Asp Thr Leu Gln Gln Leu Thr Ala 55 His Met Met Val Thr Gly His Phe Leu Lys Val Thr Thr Ser Ala Ser 70 75 Lys Lys Gly Lys Gln Leu Val Leu Asp Pro Val Val Glu Glu Lys Ile 90 Gln Ser Ile Pro Leu Pro Pro Thr Thr His Thr Arg Leu Pro Ala Ser 105 Ser Ile Lys Lys Gln Pro Asp Ser Pro Ala Gly Ser Thr Thr Ser Glu 120 Glu Lys Lys Glu Pro Glu Lys Glu Lys Pro Pro Val Ala Gly Asp Ala 135 140 Glu Lys Ile Lys Glu Glu Ser Glu Asp Ser Leu Glu Lys Phe Glu Pro 150 155 Ser Thr Leu Tyr Pro Tyr Leu Arg Glu Glu Asp Leu Asp Asp Ser Pro 165 170 Lys Gly Gly Leu Asp Ile Leu Lys Ser Leu Glu Asn Thr Val Ser Thr 185 Ala Ile Ser Lys Ala Gln Asn Gly Ala Pro Ser Trp Gly Gly Tyr Pro 200 Ser Ile His Ala Ala Tyr Gln Leu Pro Gly Thr Val Lys Pro Leu Pro 215 220 Ala Ala Val Gln Ser Val Gln Val Gln Pro Ser Tyr Ala Gly Gly Val 230 235 Lys Ser Leu Ser Ser Ala Glu His Asn Ala Leu Leu His Ser Pro Gly 250 Ser Leu Thr Pro Pro Pro His Lys Ser Asn Val Ser Ala Met Glu Glu

			260					265					270		
Leu	Val	Glu 275	Lys	Val	Thr	Gly	Lys 280	Val	Asn	Ile	Lys	Lys 285	Glu	Glu	Arg
Pro	Pro 290	Glu	Lys	Glu	Lys	Ser 295	Ser	Leu	Ala	Lys	Ala 300	Ala	Ser	Pro	Ile
305	-		Asn	-	310			•		315				-	320
			Lys	325					330				_	335	
			Asp 340					345					350		
		355	Asn				360		-			365	_		
	370		Ser			375					380				
385			Leu		390					395					400
			Met	405	_	-			410				~	415	
			Ala 420					425					430		
		435	Asn				440					445			
	450		Val			455					460				_
465			Leu		470					475					480
			Pro	485					490					495	
			Gly 500					505					510		
		515	Arg				520					525			
	530		Gln			535					540				
545	_	_	Thr		550	_		-		555		-			560
			Tyr	565					570				_	575	
			580 Thr					585					590		
		595	Thr				600					605			
	610		Leu			615					620				
625					630					635					640
			Asn	645					650					655	
			Thr 660					665					670		
cys	Mall	675	Thr	FIIE	мта	ьys	680		arg	ser	GIN	1nr 685	ата	Pro	

<210> 586

<211> 1898 <212> DNA <213> Homo Sapiens

<400> 586

cogcettggg tcagcctgct cocctgette ctgccgcagt gggggccgtc agcctggcca cotoccagot cocaagooca cocotggggo coacegteec cocacagoca cocteggee 120 tggagtcgga tggggaaggg ccgccccca gggtgggctt tgtggacagc accatcaaga 180 gcctggacga naagctgcgg actctgctct accaggagca cgtgcccacc tcctcagcct cagetgggac ccctgtggag gtgggcgaca ganacttcac cctggagccc ctgagagggg 300 accageceeg cteanaggte tgegggggg acctqqccct qccccaqtq cctaaggagg 360 cggtctcagg gcgtgtccag ctgccccagc ccttggtgga gaagtcagaa ctggccccca 420 ctcgaggggc cgtgatggag cagggcacgt cctcgtcaat gacagagtcg tctcccagga 480 gtatgctagg ctatgacaga gatggaaggc aggtggcctc agactcccat gtggtcccca 540 gcgtccccca ggatgtacct gcttttgtga gacctqcacq tqtqqanccc acanacaqqq 600 atggtggana agctgganaa agctcggcan agcccccgcc gagtgacatg ggcanngtgg 660 ggggccaggc tagccacccc cagacactcg gcnctcgagc tttggggtcc cctcgqaanc 720 gtccagatca ccaggatgtc agctcaccag ccaagactgt gggccgtttc tcqqtqqtca 780 gcactcagga cgagtggacc ctggcctccc cccacagcct gagatactct gccccacccg 840 acqtctacct ggacgaggcc ccctccagcc ccgacgtgaa gctggcagtg cggcgggcgc 900 agacggcctc ctccatcgag gtcggcgtgg gcgagcccgt gtccagcgac tctggggacg agggccctcg ggcgagaccc ccggtgcaga agcaggcgtc cctgcccgtg aqtqcaqcq 1020 tggctggcga cttcgtgaag aaggccaccg cttcctgcag aggccttctc gggccggctt 1080 egetgggece egagacacce ageagggtgg geatgaaggt ecceacqate ageqtgacet 1140 cettecatte ceagtegtee tacateagea gegacaatga tteggagete gaggatgetg acataaagaa ggagctgcan agtctgcggg agaagcacct gaaggagatc tcggagctgc 1260 agagccagca gaagcaggag atcgaagctc tgtnccgccg cctgggcaag ccactgccc 1320 ccaacgtggg cttcttccac acggcacccc ccactggccg ccgganaaaa accancaaqa ncaagetgaa ngcaggcaag etgetaaate eeetggtgeg geageteaag gtegtggeet ccaacacagg tcacttgget gactccanca naagccctcc cgctaangac etgecenage 1500 cagtgtgggg ctcactgcan acaacacqqq cctqaacqqq aanqcaqtqc anaccancan 1560 coctgotocg teeggggete cotgtetten gacatetget ceggettace antgatggaa geggaacgeg tngncaangg teetecacca acaacetgge ecaggeetga accaagecee accegecety caegtecaay egeangtgaa caacancaac nacaagaaag gttettenee 1740 gacgaactgc acaanctggt ggacnaatgg acaacaanan ngtggggggc gcgcactgaa acccacnete nacccetnaa nennaacene aacttecana cattgaggee egeaggtggg 1860 ctgccctggc naagcccggc tttnaccccc ctccaaca 1898

```
<210> 587
<211> 399
<212> PRT
```

<213> Homo Sapiens

<400> 587

				85					90					95	
Gly	Asp	Gln	Pro	Arg	Ser	Val	Cys	Gly	Gly	Asp	Leu	Ala	Leu	Pro	Pro
			100					105					110		
Val	Pro	Lys	Glu	Ala	Va1	Ser	Gly	Arg	Val	Gln	Leu	Pro	Gln	Pro	Leu
		115					120					125			
Val	Glu	Lvs	Ser	Glu	Leu	Ala	Pro	Thr	Ara	Glv	Ala	Va1	Met	G111	Gln
	130	-,-				135			5		140				
Glar		Sar	Ser	Sar	Met		Glu	Car	Sar	Dro		202	Met	T on	G1
145	1111	Der	DCI	Der	150	1111	Olu	Der	UCI	155	ALG	Ser	Mec	neu	160
	*	7	7	a1		01-	**- 1	22-	0		0	***	**- 7		
Tyr	Asp	Arg	Asp		Arg	GIII	vai	Ата		Asp	ser	HIS	Val		Pro
_		_	_	165		_			170					175	
Ser	Val	Pro		Asp	Val	Pro	Ala		Val	Arg	Pro	Ala	Arg	Val	Pro
			180					185					190		
Thr	Arg	Asp	Gly	Gly	Ala	Gly	Ser	Ser	Ala	Pro	Pro	Pro	Ser	Asp	Met
		195					200					205			
Gly	Val	Gly	Gly	Gln	Ala	Ser	His	Pro	Gln	Thr	Leu	Gly	Arg	Ala	Leu
	210					215					220				
Glv	Ser	Pro	Arq	Arq	Pro	Asp	His	Gln	Asp	Val	Ser	Ser	Pro	Ala	Lvs
225			_	_	230	_			-	235					240
	Val	Glv	Ara	Phe	Ser	val	Val	Ser	Thr	Gln	Asn	Glu	Trp	Thr	
		2		245					250					255	
aΙa	Ser	Pro	Hic		T.em	Δra	Tyrr	Ser		Dro	Dro	Aen	Val		T 011
714	DCI		260	001		9		265	ALC	110	110	Lop	270	TAT	пец
7	a1	710		C		D	7		v	*	33-	**- 7	Arg		
Авр	GIU	275	PIO	ser	ser	PIO	280	vai	ьуѕ	Leu	Ala		Arg	Arg	Ата
			_	~								285		_	
GID		Ala	ser	ser	IIe		Val	GIY	Val	GIY		Pro	Val	Ser	Ser
	290					295					300				
	Ser	Gly	Asp	Glu		Pro	Arg	Ala	Arg		Pro	Val	Gln	Lys	Gln
305					310					315					320
Ala	Ser	Leu	Pro	Val	Ser	Gly	Ser	Val	Ala	Gly	Asp	Phe	Val	Lys	Lys
				325					330					335	
Ala	Thr	Ala	Ser	Cys	Arg	Gly	Leu	Leu	Gly	Pro	Ala	Ser	Leu	Gly	Pro
			340					345					350		
Glu	Thr	Pro	Ser	Arg	Val	Gly	Met	Lys	Val	Pro	Thr	Ile	Ser	Val	Thr
		355					360					365			
Ser	Phe	His	Ser	Gln	Ser	Ser	Tvr	Ile	Ser	Ser	Asp	Asn	Asp	Ser	Glu
	370					375	- / -				380				cru
Len		Asn	Δla	Asn	Tle		Larg	Glu	T.e.12	Ser		Ara	Glu	Tare	
385	-24				390	-30	-30			395		9	-Lu	20	

<210> 588

<211> 707 <212> DNA

<213> Homo Sapiens

<400> 588

agatggcgcc tgttgtgaca gggaaatttg gtgagcggcc tccacctaaa cgacttacta 60 gggaagctat gcgaaattat ttaaaagagc gaggggatca aacagtnett attetteatg 120 caaaagttgc acagaagtca tatggaaatg aaanaaggtt tttttgccca cctccttgtg 180 tatatcttat gggcantgga tggaagaaaa aaaangaaca aatggaacgc gatggttgtt 240 ctgaacaaaa gtctcaaccg tgtgcattta ttgggatagg aaatagtgac caaaaaatgc 300 agcagctana cttggaagga aagaactatt gcacagccaa aacattgtat atatctgact 360 cagacaagcg aaagcacttc atgttgtctg taaagatgtt ctatggcaac agtgatgaca 420 ttggtgtgtt cctcagcaag cgaataaaag tcntctccaa accttccaaa aagaacagtc 480 attgaaaaat getgacttat geattgeete angaacaaag gtggetetgt ttaategact 540

achiaceccan acagetagea					600
gttcacagen gtggggagee				tccnaaggag	660
aagaattcac ngtccgagat	ggctacatcc	attatggaca	aacagtc		707
<210> 589					
<211> 551					
<212> DNA					
<213> Homo Sapie	ens				
<400> 589					
actgtggctt ctgcatttca	aatcagcact	tacaaaaaa	caacggggtt.	tttgaatagt	60
atcacctggt atgaaaagtt					120
ttttgttaac tttttgccac					180
ggataccact gtggctgtan					240
actteceteg etgtttgtgt					300
gattgeteet getgeactge					360
aaggctggtg gaataaatga					420
ttgccggacc catctccaac					480
acctetecae acctgtacat	aatttcagct	tctacatccc	caaaccacac	tcgtaaattt	540
ggantnaaaa t					551
<210> 590					
<211> 478					
<212> DNA					
<213> Homo Sapie	ens				
<400> 590					
actgtggctt ctgcatttca	aatcagcact	tgcagggana	caacggggtt	tttgaatagt	60
atcacctggt atgaaaagtt					120
ttttgttaac ttttngccac	actcaantca	gtttaagtcc	taqcaaaaan	acggtagtta	180
ggataccact gtggctgtaa					240
actteceteg etgtttgtgt	ttgattcgtn	aggggggacc	togettgaat	tggctcgaag	300
gattgeteet getgeaetge					360
aggntggtgg aataaatgat					420
tngncggaac catctccgac					478
enghoggade cateceague	circocyguaa	ngcagaagcg	cengeggnag	accygaac	4/0
<210> 591					
<211> 707					
<211> 707 <212> DNA					
<213> Homo Sapi	ens				
.400- 501					
<400> 591					
actgtggctt ctgcatttca	aatcagcact	tgcagggaga	caacggggtt	tttgaatagt	60
atcacctggt atgaaaagtt	ttcccaanaa	accacaaacg	attgttcatt	ttttctcctt	120
ttttgttaac tttttgccac	actcaantca	gtttaantcc	tancaaaaag	acggtagtta	180
ggataccact gtggctgtaa					240
acttccctcg ctgtttgtgt					300
gattgctcct gctgcactgc	aatgtggccg	eggeeetggt	tctggtgtgt	aggtaaaggt	360
aaggetggtg gaataaatga	ttccatcatt	teggaccaaa	gttactggaa	cctggactgg	420
ttgccggacc catctccaac	cttctcggaa	tgcagaaatg	tetgggaega	cacagancat	480
acteteteca cacetgtaca	tagtttenge	ttctacatcc	ccaaaccaca	ctcgtaaatt	540
tggantgaaa ttctgtcctg					600
tgaaaggete tetaceacan					660
tcattaaatg tnatactccg	ccttatcngt	cctaaangaa	tatnas	Sociation	707
		caddiigaa	og carcaa		/ 0 /

<211> 541 <212> DNA <213> Homo Sapiens <400> 592 ggtaaacttt tggccacnen caatteantt taatteetae caaaaaaacg gtatttagna 60 thechetgtg getgtaaata atttaachet ggttaaattn nthetggett thgthtanet 120 ccccccctn ttngtttttn atccnttagg gggcacctgn cttnantngg cncaaaggat ngccctgct gcantgcaat ttggccncgg ccctgqtcct qgtttntagg taaaggtaag 240 genggtgnaa taantaatee caccattneg naccaaattt actgnaacet gaacnggttg 300 ccqnacccan cnccancctn cncqaaatgc aaaantttct qqnacaacnc aaaccntacn 360 enenceacce etninentat tincagetne taenteecca aaccacaene niaaatingn 420 attaaaatcc tntcctgtaa ttccaagcat ggctacttcc ccaccgccat tcaactnaaq 480 gccenctacc acaggencag nattaantqq qqcaaqqaaa qqqcccatcc ccccataaaa 540 541 <210> 593 <211> 605 <212> DNA <213> Homo Sapiens <400> 593 actgtggctt ctgcatttca aatcagcact tgcagggana caacggggtt tttgaatant 60 atcacctqqt atqaaaaqtt ttcccaanaa accacaaacn antqttcatt tttnctcctt 120 ttttgttaac tttttgccac actcaantca gtttaantcc tagcaaaaaa acggtagtta 180 ggataccact gtggctgtaa atgatgtnac actggttgaa tttgtgctgg cgtttgtgtn 240 acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tqgcttgaat tqqctcqaan 300 gattgctcct gctgcactgc aatgtggccg cggccctggt tctggtgtgt aagtaaaggt 360 aaqqctggtg qaataaatga ttccntcatt tcqqancaaa qttactqqaa cctqqantqq 420 ttgncqqacc atctccaacc ttctcqqaat gcanaaatgt ctqqqacaan acnnaacata 480 ctctctccnc acctqqttca tantttcaqc ttctacatcc cccaaaccac actentaaat 540 ttggantgaa attctgtcct gttaattcaa acattgctac gtccccnccg ccattcaact 600 gaaag 605 <210> 594 <211> 666 <212> DNA <213> Homo Sapiens <400> 594 gaagagtttg tggaagatgg cgcctgttgt gacagggaaa tttggtgagc ggcctccacc 60 taaacgactt actagggaag ctatgcgaaa ttatttaaaa gagcgagggg atcaaacagt 120 acttattctt catgcaaaag ttgcacagaa gtcatatgga aatgaaaaaa ggtttttttg 180 cccacctcct tgtgtatatc ttatgggcag tggatggaag aaaaaaaaag aacaaatgga 240 acgcgatggt tgttctgaac aagagtctca accgtgtgca tttattqqqa taqqaaataq 300 tqaccaaqaa atgcagcagc taaacttgga aggaaagaac tattgcacag ccaaaacatt 360 gtatatatet gaeteagaea agegaaagea etteatgttg tetgtaaaga tgttetatgg 420 caacagtgat gacattggtg tgttcctcan caagcggata aaagtcatct ccaaaccttc 480 caaaaagaac agtcattgaa aaatgctgac ttatgcattg cctcaggaac aaaggtggct 540 ctgtttaatc gactacgatc ccaqacagtt nqtaccaqat acttqcatqt anaaqqaqqt 600 aattttccat gccaqttccc accaqtqqqq aqcctttttt attcnctctt qqqatqatqa 660

<210> 595

tgaatc

<210> 592

666

<211> 600 <212> DNA <213> Homo Sapiens <400> 595 qccacactca aqtcaqttta aqtcctaqca aaaaqacqqt aqttaqqata ccactqtqqc 60 tgtanatgat gtgacactgg ttgaatttgt gctggcgttt gtgtaacttc cctcgctgtt 120 tgtgtttgat tegttagggg geacetgget tgaattgget egaaggattg eteetgetge 180 actgcaatgt ggccqcqgcc ctgqttctqq tqtqtaqqta aaqqtaaqqc tqqtqqaata 240 aatqattcca tcatttcqqa ccaaaqttac tqqaacctqq actqqttqcc qqacccatct 300 ccaaccttct cggaatgcag aaatgtctgg gacgacacag ancatactct ctccacacct 360 gtacatagtt tcagcttcta catccccaaa ccacactcgt aaatttggag tgaaattctg 420 tectqtaaqt teaaqcattq ctacqteecc accqccatte aactqaaqqe tetetaccae 480 aggcacagga atgactgggg caaggacagg gcccattccc tncataaaat gtntaatttg 540 gggncaantg tggcccccaa cccccccca aagggcatna tttaacnccn ctttaattgg 600 <210> 596 <211> 835 <212> DNA <213> Homo Sapiens <400> 596 actqtqqctt ctqcatttca aatcagcact tqcaqqqaqa caacqqqqtt tttqaataqt 60 atcacctqqt atqaaaqtt ttcccaanaa accacaaacn attqttcatt ttttctcctt 120 ttttgttaac tttttgccac actcaantca gtttaagtcc tagcaaaaan acggtagtta 180 ggataccact gtggctgtaa atnatgtgac actggttgaa tttgtgctgg cgtttgtgta 240 acttccctcg ctgtttgtgt ttgattcgtt agggggcacc tggcttgaat tqqctcqaaq 300 gattgctcct gctgcactgc aatqtgqccq cqqccctqqt tctqqtqtqt aqqtaaaqqt aaqqctqqtq qaataaatqa ttccatcatt tcqqaccaaa qttactqqaa cctqqactqq 420 ttgccggacc catctccaac cttctcggaa tgcagaaatg tctgggacga cacanancat 480 acteteteca cacetquaca taqtiteaqe ttetacatee ecaaaccaca etequaaatt 540 tggagtgaaa ttctgtcctg taagttcaag cattgctacg tccccaccgc cattcaactg 600 aaggeeteta cacaggeaca ggaatgactg gggcaaggan agggeecatt ceeteataaa 660 atgtatactc tgccttatct gtgctaatga ttgtccagga aacgccanca ttttaccacc 720 tenttattgg ttettttggg antggaatgg cetqaaattg aaatattett eettqaaaaa 780 aggccaaata cntcttctgt ttccttnaaq gqtaaaatgc ccatttttgg aattq 835 <210> 597 <211> 443 <212> DNA <213> Homo Sapiens <400> 597 agcagttcga atgccaggaa actgctcgag tgccaggtgc aggtgggggc ccccgaggag 60 gaggaggagg aggaggagga cgcqggcctg gtggccgagg ccgangccgt qqctqccqqc 120 tggatgctcg atttcctctg cctctctctt tgccqaqctt tccgcnacgg ccqctccqaq 180 gacttccncn qqacccqcaa caqcqcanaq qctattattc atqqactatc caqtctaaca 240 gcttgccagt gagaacgata tacatatgtc agtttttgac aagaattgca gcaggaaaaa 300 cccttgatgc ncagtttgaa aatgatgaac gaattacacc cttggaaten gccctgatga 360 tttggggttc aattgaaaag gaacatgacn aacttcntga agaaatacag aatttaatta 420 aaattcangc tatngctgtt tgt 443 <210> 598

<211> 491

<212> DNA

```
<213> Homo Sapiens
```

```
<400> 598
gtactttgag gagttcctac tettettet ttettattaa ggtettgttg etgggttcca
tgttgcaact tagataanaa aagattottg tgagacotca ataagqatac tgtaccotct
                                                                      120
gaggattcag ttaccgcaga ctgtttgtca ctaacacttt ttcttqtatc caaattagct
                                                                      180
tcagtttcca tttcaacatc attaccacta ggtttatctt gagaagttat tgttcttgtc
                                                                      240
cttttgettt ctactacttt tgeegetgee tteattagaa aggttgatga ttttteactt
                                                                      300
agcacataat tcacataact cttaattttc tccatcatgt ggttgtagct gaagtgttga
                                                                      360
aaaaaggaat gaaatgtatc tttctgagan attatcataa gcaatttgct tttgaaaggc
                                                                      420
atatgagaat ttggatcacc aaatattett tcaaagaett ettetgette tttaaagttg
                                                                      480
ccattttcca t
                                                                      491
```

<210> 599 <211> 802

<212> DNA

<213> Homo Sapiens

<400> 599

```
gtactttgag gagtteetac tettettet ttettattaa ggtettgttg etgggtteea
                                                                       60
tqttqcaact taaataagaa aagattettg tgagacetca ataaggatae tgtaceetet
                                                                      120
gaggattcag ttaccgcaga ctgtttgtca ctaacacttt ttcttgtatc caaattagct
                                                                      180
tcagtttcca tttcaacatc attaccacta ggtttatctt gagaagttat tgttcttgtc
                                                                      240
cttttgcttt ctactacttt tgccgctgcc ttcattagaa aggttgatga tttttcactt
                                                                      300
agcacataat tcacataact cttaattttc tccatcatgt ggttgtagct gaagtgttga
                                                                      360
aaaaaggaat gaaatgtatc tttctgagag attatcataa gcaatttgct tttgaaaggc
                                                                      420
atatgagaat ttggatcacc aaatattett tcaaagactt ettetgette tttaaagttg
                                                                      480
ccattttcca tacaaacage tatageetga attttaatta aattetgtat ttetteatga
                                                                      540
agtttgtcat gttccttttc aattgaaccc caaatcatca gggctgattc caanggtgta
                                                                      600
attogttcat cattttcaaa ctgtgcatca agggtttttc ctgctgcaat tcttgtcaaa
                                                                      660
aactgacata tgtntatcgt tctcaactgg cnagcetgtt aaactggaaa atccatgaat
                                                                      720
aataacetet ggegetgttg egggteetge ggaaatteen eggaacegge egteneggaa
                                                                      780
aactengcaa aagaaaaaaa ge
                                                                      802
```

<210> 600

<211> 523

<212> DNA

<213> Homo Sapiens

<400> 600

```
gaaaagcaac ttttattgaa naatttggag ggaaggttcc atattatatt ataatagtaa
                                                                       60
aaatactaaa gttgaatgtt gtaaaaaaac neegtggtge ageggeageg geagegtetg
                                                                      120
gccaggaggc gtggaggggc ccagggatgg ccaccccac agggagtcag ggagggcctg
                                                                      180
gggcgacagc ggaaaggtta agcgtcnaaa aggtcaagtg ctaccgtgga naaatcatct
                                                                      240
gaggggagg ctcccggtgg gacagtcacc aanaactgtn acacacaagg ggaagggga
                                                                      300
gggettteet gtcacaaana ttaaaaaccc cenaaatgca tttgaacaac atnatacacn
                                                                      360
ataacaaatt taaaccttgc tcctctgtcc cactgggtna accetggccc atcceccatc
                                                                      420
cetggteeca teccagggge ceagecteeg atnacteete anaaacaeng cettnntget
                                                                      480
ggggggetge tgtntncctg ccaccecenn gaaaaggtge tgg
                                                                      523
```

<210> 601

<211> 530

<212> DNA

<213> Homo Sapiens

<400:						
			gaaggtncca			60
			centgntgca			120
			cnececenca			180 240
			ggtcaattnc			300
			aaaactntna cnaaatgcct			360
			actgggtnaa			420
			taacttcctc			480
			aaaggtnctg		cccnccnccg	530
3333300300	***************************************	coccodana	aaaggeneeg	geeceecee		550
<210:	> 602					
<211:	> 311					
<212:	> DNA					
<213	> Homo Sapie	ens				
	> 602					
gccnancagg	nanccgccgc	tgaagccacc	geegggtgee	cagegeegee	geegeeeeeg	60
ageteeceeg	cgcccctgcc	cncgggcggn	cggtgggcac	cgggcgccat	ggccgcgccg	120
			ggtgenegga			180
			cacttentee			240
ccccgccgag	gengeegege	tgtgctctgg	ggatctnctg	ntcnaggtca	acntgcntca	300
acgtgnaggg	C					311
.010	602					
	> 603 > 289					
	> DNA					
<213	> Homo Sapi	ens				
<400	> 603					
gcanagaaag	gtttgtttta	ttqcaattat	ttaaatcncg	teccanggg	gagggaagg	60
			attngatncc			120
			ctttcantca			180
			ctcccntgac			240
			gttncacnct			289
	> 604					
	> 356					
	> DNA					
<213	> Homo Sapi	ens				
-400	> 604					
		ccaacaaaaa	cgccgccccc	gagatagaga	aaaaaaataa	60
			tggccgcncc			120
			acggetteca			180
			ceggtteece			240
			gcgtcaacnt			300
			gcanactcgg			356
5-550110	3	3399		90099099		556
<210	> 605					
<211	> 290					
<212	> DNA					
<213	> Homo Sapi	ens				

<pre><400> 606 cgccagaaaa agttattta atttctatt aaacattctt ctcaaagcat tattttatcc 60 cgccagaaaaa agttattta atttctatt aaacattctt ctcaaagcat tattttatcc 120 catattctcac tgaaatttaa gaaataacat tagtattaga aaaactagga aaaaggataa 120 aaattgaaat taaacttac atgaaaaag aaaattataa caaaggactg agaacgttat 180 aaattgaaat gaggattataa tttgaacaat gcatctgaaa gcaaacttta ttgttcaatt 130 aaaatattt ttatttaaa aataagcctg tgttcaagct ctgatcatat ttcttttatt 160 aaaattattga atgggtttt atgactaata cactgattt tcaagaaagga aacccatgt 1300 aaaaatattt ttatttaaa aataagcctg tgttcaagct ctgatcatat ttcttttatt 160 atctcactaa ttttaanaac tattgagaaa ttgttcatadg cactgaagtg cacaacacta 140 atctcactaa ttttaanaac tattgagaaa ttgattatadg cactgaagtg cacaacacta 140 atctcactgcc agctgttggc attgtgttc ttacttagt ctcccaaggg aaaactctta 150 attgttacata gtcetttggg attttactgt tcctaatttt attctgaaa cacaacacta 160 tgtttacata gtcetttggg attttactgt tcctaatttt attctgaaaa caagctttt 160 tgtttacata gtcetttggg attttactgt tcctaatttt attctgaaaa caagctttt 160 cccagaacca aattaccata ttaacttgt tntgcacagt tgtttgccaa tcca 1714 <pre></pre> <pre><th>gggangggaa ggggggggth tottgctana aactggaaac nnantcgact nocaccaact ginnhotte ettectite intigecett etnecetth titeeceten egetiteeel etetetete eteaceteit teteecete eetteaenel <210> 606 <211> 714 <212> DNA <213> Homo Sapiens</th><th>c ntgtttctta c cnangtccct t nactctttat</th><th>anntacence</th><th>60 120 180 240 290</th></pre></pre>	gggangggaa ggggggggth tottgctana aactggaaac nnantcgact nocaccaact ginnhotte ettectite intigecett etnecetth titeeceten egetiteeel etetetete eteaceteit teteecete eetteaenel <210> 606 <211> 714 <212> DNA <213> Homo Sapiens	c ntgtttctta c cnangtccct t nactctttat	anntacence	60 120 180 240 290
cgccagaaaa agttattta atttctatt aacattctt ctcaaagcat tatttatcc 60 tatatctcac tgaattttaa gaaaatacact tagtattaga aaaactagga aaaaaggataa 120 aaattgaaat taaaacttac atgaaaaagg aaaattataa caaaggactg agaacgtta 180 aaattgaaat gaggattataa tttgaaaaact gcatctgaaa gcaaacttta ttgttcaatt 180 aaattgaaat gaggattataa tttgaacaata cactgattt tcaagaaagga aacccatgt 300 aaaaatattt ttatttaaa aataagcctg tgttcaagct ctgatcatat ttcttttatt 360 ttgatttggg aanaaaataa tgtttctgat agcatgaaat gcaacattt tcaagaagga caccacacta atctcactaa ttttaanaac tattgagaaa ttgattaatg acgatgaaga cacaacacta 480 aattactgacc agctgttggc attgtggttc ttacttaattg ctcccaaggg aaaaccttta 660 aattactggcc agctgttggc attgtggttc ttacttagt ctcccaaggg aaaaccttta 660 aattgaatct tcagcagaat aatccttaaa tatacttgt aagcagaaca caagctttt 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa ttca 671 <pre></pre>				
tattatotcac tgaattttaa gaaataacat tagtattaga aaaactagga aaaaaggataa 120 aagtgagataa ttaaacttac atgaaaaagg aaaattataa caaaggactg agaacgttat 180 aaattgaaat gagattataa tttgaaaaac gaatcagaaa gaaacttta ttgttcaatt 240 atnottaatg atggtgtttt atgactaata cactgatttt tocagaagga aacccatgtt 360 aaaaatattt ttattttaaa aataagcctg tgttcaagct dyacaatatt totttitatt 360 ttgatttggg aanaaaatac tgtttctgat agcatgaaat gcaaaacttta tggatttta 480 attocactaa ttttaanaac tattgagaaa ttgattaatg acatgaagtg cacaacacta 480 attactggcc agctgttggc attgtyttc ttacttagtc ctcocaaggg aaaactctta 540 aattgaatct tcagcagaat aatcottaaa tatactttgt acatgaagtg cacaacacta 660 cccagaccat aattaccata attcattactgt tattgaaac aaaggttttt tggttacaat gttctttggg atttgatcgt tcacatttt attgaaac tacatttac 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa ttca 714 <210 > 607 <211 > 667 <212 > DNA <213 > Homo Sapiens <400 > 607 attttaattt tctattaaac attotctca aagcattatt ttatccata tctcactgaa ttttaacatty aaactgaat attaacaaa ggactgagaa cgttataaa agattaata 220 ttttaanaaa taacattagt attagaaaaa ctaggaaaac catgttaaaa atattttta aacttgat caagctgtgt caagactagaa cgttataaaa tacttattga 240 tgttttatga caaaacgcaa ctgaagacaa acttatttgt baattattc ttaatgatgg 240 tgttttatga ctaatacact gattttcaa taaggaaac catgttaaaa atattttta 300 ttaaaaata agcctgtgt caagactgaa aacttttattg tbaattato ttaatgatgg 360 aaatactgtt tctgatagca tgaaatgcaa aattttta ttattttag tttgggaaga 360 aaatactgtt tctgatagca tgaaatgcaa aacttttattag ttttaattctta ctcactgaa 600 ttaaaaata gagaaattga ttaatgcaa gaagtgcaca acactaatta ctggccagct 480 ggattttact gttcctatt ttattctgaa aaccaaactt tttttgatttaact catggcagct 600 ggattttact gttcctatt ttattctgaa aaccaaactt ttttggttac aagttcacc 600 ggattttact gttcctaatt ttattctgaa accatatt tccccaagac aacttcact ggaaacct tgattacac agttgtt <210 > 608 <211 > 904 <212 > DNA <213 > Homo Sapiens <400 > 608 Ccacccagt tgctcctcaa gtgtttggt atgctggaaa agaacatt ggaaaaatat ggaaaaatat ggaacaaaac tctaaaaga 120 aaccacaaatt gaacacttt gcaaaaattg gaagaaaa tcataaaca tcagttaata 120 aaccaccagtt tgctcctaa gatgttggat a				
atgragataa thaaacttac atgaaaaagg aaaattataa caaaggactg agaacgtat 240 aaattgaaat gagattataa tttgaaaat gagattataa tttgaaaat gaactataa ttgaaata gagattataa ttgaaata gaaattatta ttattataa ataagactg tgttcaaagt caaaattatt ttatttataa aataagcctg tgttcaaagt caaaattat ttctttatat 420 aaaaatattt ttattataa aataagcctg tgttcaaagt gaaaaattat ttattataaa ataagactg tgttcaaagt gaaaaattat ttagatttta 420 atctcactaa ttttaanaaa tattggtttc ttacttagt ctcccaaggg aaaacccta 480 aattactgagc agctgttgg atggtttc ttacttagt ctcccaaggg aaaacctta 540 aattgaatt tcagcagaat aatccttaaa tatcttgt aagcaaaaca aaagctttt 600 tgtttaaata gttctttggg attttactgt tcctaatttt atctgaaaac caaagctttt 600 ccccaagacat aattaccata ttaacttgt tntgcaagt tgttgcaa ttca 714 ccccaaggg aaaacccta 420 ccccaagacat aattaccata ttaacttgt tntgcacagt tgttgccaa ttca 714 ccccaagga tattaccata ttaacttgt tntgcacagt tgttgccaa ttca 714 ccccaagag aaaaccctaa 660 cccaagacat aattaccata ttaacttgt tntgcacagt tgttgccaa ttca 714 ccccaagga aaacccata 420 cccaagacaa aattaccata ttaacttgt tntgcacagt tgttgccaa ttca 714 ccccaaggacaa attttaaccata 120 cccaagacaa aattaccata 120 aacttacatga aaaaggaaaa attaagaaaa ccaaggaaaaa agatnaatga agataaataa 120 aacttacatga aaaaggaaaa ttaaacaaa ggactgagaa cgttataaa tgaaatgaga 180 ttataaattg aaaaccgaa tcgaagaaaa acttatttgt ttaattgaaatga 120 aaaaaccgat tctgaagccaa acttatttgt ttatattggaagaa 120 aaaaaccgt tctcaagcatga 120 aaaaaccgt tctcaagcatga tcaattatt ttaattgaaagaga 120 aaaaaccgt tctcaagcatga 120 aaaaaccat tagaaaccatga 120 aaaaaccat tagaaaccatga 120 aagaaacattg 120 aagaaaccatga 120 aaaaacact tcaagtacatga 120 aagaaacatt 120 aagaacatt 120 aagaaacatt 120 aagaacatt 120 aagaaacatt 120 aagaacatt 120 aagaacatt 120 aag				
aaattgaaat gagattataa tttgaaaact gactctgaaa gcaaacttta ttgttcaatt 240 anattgaata atgggtttt atgactaata cactgattt tcaagaaagga aacccatgtt 300 aaaaatattt ttattttaaa aataagcctg tgttcaagct ctgatcatat ttcttttatt 360 atcaaactattga aanaaaatac tgtttctgat agcatgaaat gcaaaatttt tagatttta 420 atcactaaa ttttaanaaa tattgagaaa ttgattaatg acatgaagga aaccctaa 480 attactgacc agctgttggc attgtggttc ttacttagtt ctcccaagga aaaacctta 480 attactgacc agctgttggc attgtggttc ttacttagtt ctcccaagga aaaaccttta 660 attgttacata gttctttggg atttactgt tctactagtt ctcccaagga aaaaccttta 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa ttca 671 <pre></pre>				
atmicttaatg atggtgtttt atgactaata cactgatttt toagagaga aacccatgtt 360 aaaaatattt ttattttaaa aataagcctg tgttcaagct otgatcatat ttottttatt 360 ttgatttggg anaaaaatac tgtttctgat agcatgaaat gcaaaatttt tagatttta 420 atctcactaa ttttaanaac tattgagaaa ttgattaatg acatgaagtg cacaacacta 480 atttaatgagcc agctgttggc attggtgttc ttacttagtt ctccacaggg aaaactctta 540 aattgaagtc tcagcagaat aatccttaat atactttgt aaccaacaca aaagcttttt 660 cccagagcaat aatccata ttaactttgt tntgcacagt tgttggcaa ttca 210 667 <211				
aaaaatattt ttatttaaa aataagcctg tyttcaagct ctgatcatat ttctttatt 420 atctcactaa ttttaanaac tattgagaaa tragatatat gacatgaat gcacaacatta 420 atctcactaa ttttaanaac tattgagaaa ttgattatat ccacaagta cacacacta 480 atctcactaa ttttaanaac tattgagaaa ttgattatat ccacaagta cacacacta 480 atctcactgcc agctgttggc attgtgttc ttacttagtt ccccaaggg aaaactctta 680 tgttacata gttctttggg attgtgttc tcctaattt atctgaaac tcaagtttta 680 tgttacata gttctttggg atttactgt tcctaattt atctgaaac tcaatttac 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa ttca 714 <pre></pre>				
ttgatttggg aanaaaatac tgtttctgat agcatgaaat gcaaaatttt tagattttta 420 atttactaaa ttttaanaac tattgagaaa ttgattaatg acatgaagtg cacaacacta 480 attactggcc agctgttggc attgtgttc ttacttagtc ctcccaaggg aaaactctta 540 aattgaatct tcagcagaaa aatccttaaa tatactttgt aagcaaaaca aaagctttt 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa tca 714 <pre></pre>				
attotcactaa tittaanaac tattgagaaa tigattaatg acatgaagtg cacaacacta 480 aattactgoc agctgttgog attgtgttc tractatagt ciccocaaggg aaaactctta 540 aattgaatct tcagcagaat aatccttaaa tatactttgt aagcaaaaca aaagctttt 660 cocagaccat aattaccata titaacttgt toctaattit attctgaaac tcaattitac 660 cocagaccat aattaccata titaacttgt tntgcacagt tgtttgccaa tica 714 <210 > 607 <211 > 687 <212 > DNA <213 > Homo Sapiens <400 > 607 attitaattt tctataaac attcitctca aagcattatt tataccata tctaacttag aaaaggaaaa tcttaaaataa atcatagt attaacaaa ggactgagaa cgttaaaa tatattita 220 acttacatga aaaaggaaa tataacaaa ggactgagaa cgttaataa tgaaatgag 180 tittaanaaa taacattagt attaacaaa ggactgagaa cgttaataa tttaattggatagaga 180 tittaaatti gaaaactgaa tctgaaagcaa acttattigt tcaattattg tataatgagagaga 180 tittaaaaata agcctgtgt caagctctga tcatattict tittatittg tittgggaaga 360 aaatactgtt tctgatgca tgaaagcaa aattitttaa tittaactat tgagaagaga 180 tittaaaaata agcctgtgt caagctctga tcatattict tittatittg tittgggaaga 360 aaatactgtt tctgatgca tgaaatcgaa aattitttag tittgagtaaga 360 gttggcattg tgttcttaa ttagtcca gaagtgcaca acactaatta ctggccagct 480 gttggcattg tgttcttaa ttagtcca gaagtgcaca acactaatta ctggccagct 480 ggattttact gattcctaatt ttagtcccc caaggaaaac tcttaaactg aactctcagc 540 ggattttact gttcctaatt ttattctgaa actcatttt tcccaagca ataattaccc 660 tatttaactt tgtaatgca agttgtt <210 > 608 <211 > 994 <212 > DNA <213 > Homo Sapiens <400 > 608 ctcacccagt tgctcctaa atgtttggt atgctggaaa agaacatatg gaaaaatatg 60 gaacaaaaat tgaacacttt gcaaaaattg gaagaaaata ctcaaaacat tcagttaata 2120 acccgtattc ccagtccaa atgatgataca gtttaagtag agaagaagaacac tcagaataata 62 acccgtattc ccagtccaa atgatgataca gtttaagtagaa agaacatat tcagttcata 62 acccgtattcac ccagtccaa atgatgataca gtttaagaaa agaacaatat tcagttcata 62 acccgtattcac ccagtccaa atgatacaa gttaagaaa agaacaatat tcagtcaata 62 acccgtattcac ccagtccaaa atgatacaa gttaagaaa agaacaataca tcagtcaata 62 acccgtattcac ccagtccaaa atgatgataca gtttaagaaa agaacaatat tcagatacat 62 acccgtattcac ccagtccaaa atgatacaa gtatgatgaa agaacaata tcagatagaagaaccacaaccact t				
atteatctgcc agctqttggc attgtgttc ttacttagt ctcccaagg aaaactctta aattgtact tcagcagaa aatctctaa taactttgt aagcaaaca aagctttt 600 tgtttacata gtcttttgg attttactgt tcctaattt attetgaaa ccaatttta 660 cccagaccat aattaccata ttaacttgt tntgcacagt tgtttgccaa ttca 714				
aattgaatct tcagcagaat aatccttaaa tatactttgt aagcaaaca aaagcttttt tgttataat gttetttggg attttactgt tcctaattt attctgaaac tcaatttac 660 cccagaccat aattaccata ttaactttgt tntgcacagt tgtttgccaa ttca 714 <pre> <210 > 607</pre>				
tgittacata gittetitggg attitactgt tectaattit attetgaaac teaattitac 660 cccagaccat aattaccata ttaactitgt intgeacagt tgittgeeaa ttea 714				
cccagaccat aattaccata ttaactttgt tntgcacagt tgtttgccaa ttca 714 <pre></pre>				
<pre><210> 607</pre>				
attittaatti totaataaac attotictca aagcattat titatoctata totoactgaa 60 tittaanaaa taacattagt attagaaaaa ctaggaaaaa agatnaatga agataattaa 120 actiacatga aaaaggaaaa titaacaaaa ggactagaa ogitaataat gaaatagga 180 titataattig aaaactgaat otigaaagcaa actitatigt toaattatto titaatgatgg 240 titataga otaataacat gattiticaa taaggaaaac catgaaaaa atattittat 300 titaaaaata agoctigtit caagcictga toataitic titatitiga titiggaaga 360 aaatactgit totigatagoa tgaaatgoaa aattititaga tititaga titiggaaga aagaacatit gagaaatiga tiaatagaaa taattitaga tititaga ootaatat gagcaetti gagaattig toaagoacoa aacactaatta ootaattit 420 aagaacatti gagaaatiga tiaatgaaa gagyocaa aacactaatta ootgacagot 480 gitggoatti gitticitac tiagitotoc oaaggaaaa totiaaacig aatoticago 540 ngaataaacot taaatatat tigtiagoa aactocatti tooccagaco ataattacoc 660 tattiaacti tigtiacotaat tiatictigaa actocatiti tooccagaco ataattacoc 660 tattiaacti tigtiagoac agitgit 687 <pre></pre>	<212> DNA			
ttttaanaaa taacattagt attagaaaaa ctaggaaaaa agatnaatge agataattaa acattacatga aaaaggaaaa ttataaacaa ggactgagaa cgttaataaat tgaaatgaga 240 tataaatta aaacatgcat ctgaaagcaa acttaattgt teaattatte ttaatgatgg 240 tgttttataga ctaatacact gattttteaa taaggaaacc catgttaaaa atattttat 300 ttataaacata agcctgtgtt caagctcga teatattee ttattttga tteggaaga 360 aaatactgtt tctgatagca tgaaatgcaa aatttttaga tttttaated cnctaattt 420 aagaactatt gagaaattga ttaatgacat gaagtgcaca acactaatta ctggcaagct 480 gttggcattg tgtttcttac ttagtteece caaggaaaac tettaaactg aatetteage 540 ngaataacet taaatatact ttgttagca aacacaactt ttttgtttac atagtteete 660 gtatttaact gttcctaat ttattega actecattt teeceagace ataattace 660 tatttaactt gttctaat ttattegaa actecattt teeceagace ataattace 660 tatttaactt gttctaat ttattegaa actecattt teeceagace ataattace 660 catttaactt gttctagca agttgt <pre></pre>				
acattacatga aaaaggaaaa ttataacaaa ggactgagaa cgttataaat tgaaatgaga 180 ttataaatttg aaaactgcat ctgaaagcaa achttattgt toaattatto ttaatgatgg 240 tgttttatga ctaatacact gattittcaa taaggaaac catgttaaaa atattittat ttaaaaata agcctgtgtt caagctagaa achttatttat tittattitga tittgggaaga aaatactgt tittgatagca tgaaattgaa taattittat tittaattitga tittgggaaga agtagtgaaactatt gagaaattga ttaatgacaa achtattata tittaattitga tittgggaaga gttggcactgt gtgttettat titagticca caaggaaaac tottaaactg aatottcage gttggcactgt gtgttettata titgttagcat gaagtgcaca acactaatta ctggccagct gtgtggcattg tgttitatta titgttagcac acacaaactt tittgttac atagtictt ggattitact gttectaatt tittatctgaa actcattit tececagace ataattacce tgtattagcac agttgt <pre></pre>				60
ttataatttg aaaactgoat ctgaaagoaa actttattgt toaattatto ttaatgatgg 240 tgttttatga ctaatacact gattttcaa taaggaaac catgataaaa atattttatg tttaaaaata agoctgtgtt caagctctga toatattet tttattttga tttgggaaga aaatactgtt tctgatagoa tgaaatgoaa aatttttaga tttttaatc cnctaatttt 420 aagaactatt gagaaattga ttaatgoat gagycaca acactaatta ctggcaagct 480 gttggcattg tgttcctac ttagttctcc caaggaaaac tcttaaactg aatcttcagc 540 ngaataaacct taaatatact ttgttagcac aacacaactt ttttgtttac atagttcttt gggaatttac gttcctaatt ttattctgaa actccattt tccccagacc ataattaccc 660 tatttaactt tgttagcac agttgtt <pre></pre>				120
tgutttatgg chaatacact gattitcaa taaggaaacc catgutaaaa atattittat 300 ttaaaaataa agcetgtgit caagcictga teatattet titatittga titigggaaga 360 aaatactgit tetgatagca tgaaatgcaa aattittaga titittaatet enctaatitt aagaactatt gagaaattga titaatgacat gaagtgcaca acactaatta etggecaget gtitiggcatit gititettate titagitetec caaggaaaac tettaaaetg aateticage gaataacet taaatatat tigitagcca aacaaacti tititigitiac atagitetit ggattiacet gitoctaatt titaticigaa actecatit teeceagace ataattacec 660 ggattiacet gitoctaatt titaticigaa actecatiti teeceagace ataattacec 687 <pre></pre>				180
titaaaaata agcctgtgtt caagctctga toatattict titatittiga titggaaaga 360 aaatactgtt totgatagca tgaaatgcaa aatittiaga titlatacto coctaatitt 420 aagaactatt gagaaattga titatgaact gaagtgcaca acactaatta ctggccagct 480 gitggcattg tgtitcttac titagtictoc caaggaaaac tottaaactg aatottcagc 540 ngaataacct taaaataact tigtiagcaa aacaaaacti tittgtitac atagtictit 660 ggatitiact gitoctaatt titatictgaa actocatiti tocccagacc ataattaccc 660 tatitaacti tgtiagcac agtigti 687 <210 > 608 <211 > 994 <212 > DNA <213 > Homo Sapiens <400 > 608 ccacccagt tgctcctcag atgtitggg atgctggaaa agaacatatg gaaaaatatg 60 gaacaaaaat tgaacactit gcaaaaattg gatggaaaaa tcataaacat tcagtiaata 120 gaacaaaaat tgaacactit gcaaaaattg gatggaaaaa tcataaacat tcagtiaata 120 acccgtattic ccagticcaa gatgaataca gittagaga aggastagca tcataaagag 180		t tcaattattc	ttaatgatgg	
aaatactgtt tctgatagca tgaaatgcaa aatttttaga tttttaatot cnctaatttt 420 aagaactatt gagaaattga ttaatgacat gagagtgcaca acactaatta ctggccagct 480 gttggcattg tgtttcttac ttagttctcc caaggaaaac tcttaaactg aatcttcagc ngaataacct taaatatact ttgttagcca aacaacactt ttttgtttac atagttcttt 660 ggattttact gttcctaatt ttattctgaa actccattt tccccagacc ataattaccc 660 tatttaactt tgttatgcac agttgtt 687 deep 687 c210> 608 c211> 994 c212> DNN c213> Homo Sapiens c400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaaaaat tgaacactt gcaaaaattg gaacaaaaat tgaacactt gcaaaaattg gaacaatat cagttaata 120 gaacacaaaat tgaacactt ccagttcatac 120 acccgtattc ccagttccaa gatgataca gtttagatga aggtsggac tctaaagaag 180				
aagaactatt gagaaattga ttaatgacat gaagtgcaca acactaatta ctggccagct gtgtggcattg tgttetteta ttagtctcc caaggaaaac tcttaaactg aatcttcagc 1540 ngaataacct taaatact ttgttagcca aacaacactt ttttgttac atagttcttt gtattctact ttgttagcca aacaacactt ttttgttac atagttcttt ggattttact gttcctaatt ttattctgaa actccatttt tccccagacc ataattaccc 660 687 ctattaactt tgttatgcac agttgtt 687 ctattaactt gtatagcac agttgtt 687 ctattactcattact gtatagcac agttgtt 687 ctattactcattactact gtatagcac agttgtt 688 ctattacactact gtatagcactact gtatagcactact gtatagcactact gaacaacatt gaacaacatt ggaacaacatt ggaacaacat tgaacacttt gcaacacttg gatggaaaa agaacatatg gaacaacatag gaacacatta gaacacttt gcaacacttg gatggaacaact tcatagcacat tcatagcacaccgt tcccaagtccaa gtgatgaaca gttaggaacacttcaagacact tcaagacact tcaaagacag 180		c catgttaaaa	atattttat	
gttggcattg tgttcttac ttagttctcc caaggaaaac tcttaaacg aatcttcagc ngaataacct taaatatacct ttgttagca aacaaaactt ttttgtttac atagttcttt 6600 6600 6870 6870 6870 6870 6870 6870	tttaaaaata agcctgtgtt caagctctga tcatatttc	c catgttaaaa t tttattttga	atatttttat tttgggaaga	300
ngaataacct taaatatact ttgttagcca aacaaaactt ttttgtttac atagttcett 600 ggattttact gttoctaatt ttattctgaa actocatttt tecceagace ataattacce 660 687 catttaactt tgttatgcac agttgtt 688 c211> 994 c212> DNA c213> Homo Sapiens c400> 608 ctcacccagt tgctcctag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaatat tgaacacttt gcaaaaattg gaacaatat cattaaacat cagttaata 120 gaacacagtattc ccagttcaata gaaccgtattc ccagttcaata gaacgatatc ccagtattccaa gatgataca gtttagatga atgaatgagca ttcaaagaag 180	tttaaaaata ageetgtgtt caagetetga teatattte aaatactgtt tetgatagea tgaaatgeaa aatttttag.	c catgttaaaa t tttattttga a tttttaatct	atattttat tttgggaaga cnctaatttt	300 360 420
ggattttact gttoctaatt ttattctgaa actccattt tccccagacc ataattaccc 660 tatttaactt tgttatgcac agttgtt 6687 687 <pre><210> 608</pre>	tttaaaaata agcctgtgtt caagctctga tcatatttc aaatactgtt tctgatagca tgaaatgcaa aatttttag. aagaactatt gagaaattga ttaatgacat gaagtgcac	c catgttaaaa t tttattttga a tttttaatct a acactaatta	atattttat tttgggaaga cnctaatttt ctggccagct	300 360 420 480
tatttaactt tgttatgcac agttgtt 687 <210> 608 <211> 994 <212> DNA <213> Homo Sapiens <400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaatat tgaacacttt gcaaaaatt gaacacatt tcagttaata acccgtattc ccagttccaa gatgaataca gtttagatga aggatggaa tctaaagaag 180	tttaaaaata ageetgtgtt eaagetetga teatattte aaatactgtt tetgatagea tgaaatgeaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgeae gttggcattg tgtttettae ttagttetee caaggaaaa	c catgttaaaa t tttattttga a tttttaatct a acactaatta c tcttaaactg	atattttat tttgggaaga cnctaatttt ctggccagct aatcttcagc	300 360 420 480 540
<pre><210> 608 <211> 994 <212> DNA <213> Homo Sapiens <400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaaaaat tgaacacttt gcaaaaattg gatggaaaa tcataaacat tcagttaata acccgtattc ccagttccaa gatgaataca gtttagatga aggatggca tctaaagaag 120</pre>	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagoa tgaaatgoaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgoac gttggcattg tgtttottac ttagttotoc caaggaaaa ngaataacct taaattact ttgttagoca aacaaact	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540
<pre><211> 994 <212> DNA <212> DNA <213> Homo Sapiens <400> 608 Ctcacccagt tgotectcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcattaaacat tcagttaata 120 acccgtattc ccagttcoaa gatgaataca gtttagatga atgatggca tctaaagaag 180</pre>	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagoa tgaaatgoaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgoao gttggcattg tgtttottao ttagttotoc caaggaaaa ngaataacot taaatatact ttgttagoca aaccaaaact ggattttaot gttoctaatt ttattotgaa aotocattt	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
<pre><212> DNA <213> Homo Sapiens <400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata acccgtattc ccagttccaa gatgaataca gtttagatga agtgatggca tctaaagaag 180</pre>	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagoa tgaaatgoaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgoao gttggcattg tgtttottao ttagttotoc caaggaaaa ngaataacot taaatatact ttgttagoca aaccaaaact ggattttaot gttoctaatt ttattotgaa aotocattt	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
<pre><213> Homo Sapiens <400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaatat tgaacacttt gcaacaattg gaacaaaatt tgaacacttt gcaacaattg gatggaacaa tcataaacat tcagttaata 120 acccgtattc ccagttccaa gatgaataca gtttagatga aggdatggca tctaaagaag 180</pre>	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgttecttac ttagttotco caaggaaaa ngaataacot taaatatact ttgttagcca aacaaaact ggattttact gttectaatt ttattctgaa actccattt tatttaactt tgttatgcac agstgtt	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
<pre><400> 608 ctcacccagt tgctcctcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata acccgtattc ccagttccaa gatgaataca gtttagatga agtgatggca tctaaagaag 180</pre>	tttaaaaata agcctgtgtt caagctctga tcatatttc aaatactgtt tctgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgtttcttac ttagttctcc caaggaaaa ngaataacct taaatatact ttgttagcca aacaaaact ggattttact gttcctaatt ttattctgaa actccattt tatttaactt tgttatgcac agttgtt <210> 608	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
ctcaccagt tgotectcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg 60 gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata 120 acccgtattc ccagttcoaa gatgaataca gtttagatga agtgatggca tctaaagaag 180	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgtttottac ttagttotco caaggaaaa ngaataacct taaattact ttgttagcca aacaaact ggattttact gttoctaatt ttattotgaa actccattt tatttaactt tgttatgcac agttgtt <210> 608 <211> 994	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
ctcaccagt tgotectcag atgtttgggt atgctggaaa agaacatatg gaaaaatatg 60 gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata 120 acccgtattc ccagttcoaa gatgaataca gtttagatga agtgatggca tctaaagaag 180	tttaaaaata agoctgtgtt caagototga toatattto aaatactgtt totgatagoa tgaaatgoaa aattttaga aagaactatt gagaaattga ttaatgacat gaagtgoao gttggcattg tgtttettac ttagttotco caaggaaaa ngaataacot taaattact ttgttagoca aacaaaact ggatttact gttoctaatt ttattctgaa actccattt tatttaactt tgttatgoac agstgtt <210> 608 <211> 994 <212> DNA	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
gaacaaaaat tgaacacttt gcaaaaattg gatggaaaaa tcataaacat tcagttaata 120 acccgtattc ccagttccaa gatgaataca gtttagatga agtgatggca tctaaagaag 180	tttaaaaata agcctgtgtt caagctctga tcatatttc aaatactgtt tctgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgttccttac ttagttctcc caaggaaaa ngaataact taaattact ttgttagca aacaaact ggattttact gttcctaatt ttattctgaa actccattt tatttaactt tgttatgcac agttgtt <210> 608 <211> 994 <212> DNA <213> Homo Sapiens	c catgttaaaa t tttatttga a tttttaatct a acactaatta c tcttaaactg t ttttgtttac	atatttttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt	300 360 420 480 540 600
accegtatte ecagttecaa gatgaataca gtttagatga agtgatggca tetaaagaag 180	tttaaaaata agcctgtgtt caagctctga tcatatttc aaatactgtt tctgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgtttcttac ttagttctcc caaggaaaa ngaataacct taaatatact ttgttagcca aacaaaact ggatttact gttcctaatt ttattctgaa actccattt tatttaactt tgttatgcac agttgtt <210 > 608 <211 > 994 <212 > DNA <213 > Homo Sapiens <400 > 608	c catgitaaaa t tittatitiga a tittitaatot a acactaatta c totitaaactg t tittigittac t tocccagacc	atattttat tttgggaaga cnctaatttt ctggccagct aatcttcagc atagttcttt ataattaccc	300 360 420 480 540 600 660 687
	tttaaaaata agoctgtgtt caagototga toatattte aaatactgtt totgatagca tgaaatgcaa aatttttag aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgtttettac ttagttetce caaggaaaa ngaataacct taaattact ttgttagcca aacaaact ggattttact gttectaatt ttattetgaa actccattt tatttaactt tgttatgcac agttgt <210 > 608 <211 > 994 <212 > DNA <213 > Homo Sapiens <400 > 608 ctcaccagt tgetectcag atgtttggt atgctggaa	c catgitaaaa t tittatitiga a tittitaatci a acactaatta c tittaagti t tittigittac t tececagace	atattttat tttgggaaga cnctaatttt ctggcagct aatcttcagc atagttcttt ataattaccc	300 360 420 480 540 600 660 687
	tttaaaaata agcctgtgtt caagctctga tcatatttc aaatactgtt tctgatagca tgaaatgcaa aattttag; aagaactatt gagaaattga ttaatgacat gaagtgcac gttggcattg tgtttcttac ttagttctcc caaggaaaa ngaataact taaattact ttgttagcca aacaaact ggatttact gttcctaatt ttattctgaa actccattt tatttaactt tgttatgcac agttgtt <100 608 <111 994 <212 DNA <213 Homo Sapiens <400 608 ctacccagt tgctcctaag atgtttgggt atgctggaa gaacaaaaat tgaacacttt gcaaaaattg gatgggaaa	c catgitaaaa t tittattaa a tittitaatca a acactaatta c tittitagtitac t tittigittac t tocccagacc	atattttat tttggaaga cnctaattt ctggcagct aatcttcagc atagttctt ataattaccc gaaaaatatg tcagttaata	300 360 420 480 540 600 687

300

ttttggccag tgaagcattt gtacagaagt atggcctgca atccaaagct gtggaaattt

```
tggcacaaga aatgatgact gatttgccaa gctcgtttga agaaaaaagc attattaaaa
                                                                      360
tggttggctt tgatatgagt aaagaagctg caagaaaatg ctatgagaaa tctggcctga
                                                                      420
caccaaatga tattgacgta atagaacttc acgattgctt ttctaccaac gaactcctta
                                                                      480
cttatgaagc actgggactc tgtccagaag gacaaggtgc aacgctggtt gatagaggag
                                                                      540
ataatacata tggaggaaaq tqqqtcataa atcctaqtqq tqqactqatt tcaaaqqqac
                                                                      600
acceactagg egetacaggt cttgctcagt gtgcagaact ctgctggcag ctgagagggg
                                                                      660
aagccggaaa agaggcaaag ttcctggtgc aaaggtggct ctgcngcata atttangcat
                                                                      720
tggaggaact gtggttgtaa cactctacaa gatggggttt tcccggaagc cgccagttcc
                                                                      780
ttttagaact catcaaaatt gaagcongtt ccaaccaagc tctgcaagtn atnggtttaa
                                                                      840
ngnaaaatct ngttttaaag qnqqattqag aaggaaacnt naaagaggga anggggaaca
                                                                      900
atttgtgaaa gaaaaatnog gngggaattt ttgcccttca aggggaaana atggccctgg
                                                                      960
ggggtaaaag anggccaccc tggggtggtg ggat
                                                                      994
      <210> 609
      <211> 843
      <212> DNA
      <213> Homo Sapiens
      <400> 609
ggccaaaaaa anttatttna atttcctatt aanchtcctc chcaaancat tatttnaccc
                                                                       60
tatnncncnc ngantttnan aaantacctt tnntnttaaa aaacctngga aaaaaaataa
                                                                      120
tngcaaatan ttaaccttnc ttgaaaangg aaatttntac caanggacng aaancnttnt
                                                                      180
aattngaant naaattatan ttngaaancg gennengaaa ecaanettna tggtecaatt
                                                                      240
atcctnaang agggnntttn annactaatn ccengatttt ccaatangga anccennntt
                                                                      300
aaaantnttt tnattttaaa aataacceng tntccaacce engatcanat teetttnatt
                                                                      360
tggattgggg aaaaaaatnc ngttccnnat accnngaann gcaaantttt taaattttta
                                                                      420
accecectan tittaaaane tatngaaaan tngattanng acttgaattg ccaaccetan
                                                                      480
ttncnggcca ccngtgggcn tngtnttcct tacttantcc ccccaaggaa annccttaan
                                                                      540
engaanetee necaaaataa eeettaanta teettegtaa eeaaaneaaa aeetttting
                                                                      600
tttacntant ccttqqqatt taacqqqtcc ccaatttnat ccnqaaccca nttttccccc
                                                                      660
naaccatant taccatttta cettggtaag geneagtngt ttgcantnec geaaancagt
                                                                      720
anthtteccc nggcnettte ecceganeet tgggaaaaac gggatnggte eccecettaa
                                                                      780
aaaacaacct teeceencet ttggeecagg nnttntteec gtetaaatce gaacaataaa
                                                                      840
aaq
                                                                      843
      <210> 610
      <211> 707
      <212> DNA
      <213> Homo Sapiens
      <400> 610
ctagtctcga gtttttttt tttttttaa cctttcctta tgagcatgcc tgtgttgggt
                                                                       60
tgacagtgag ggtaataatg acttgttggt tgattgtana tattgggctg ttaattgtca
                                                                      120
gttcagtgtt ttaatctgac gcaggcttat qcqqaqqana atqttttcat qttacttata
                                                                      180
ctaacattag ttcttctata gggtgataga ttggtccaat tgggtgtgag gagttcagtt
                                                                      240
atatgtttgg gattttttag gtantgggtg ttgagcttga acgetttett aattggtgge
                                                                      300
tgcttttagg cctactatgg gtgttaaatt ttttactctc tctacaaggt tttttcctag
                                                                      360
tgtccaaana gctgttcctc tttggactaa cagttaaatt tacaagggga tttagagggt
                                                                      420
tctgtgggca aatttaaagt tgaactaaga ttctatcttg gacaaccagc tatcaccagg
                                                                      480
ctcggtaggt ttgtcgcctc tacctataaa tcttcccact attttgctac atagacgggq
                                                                      540
tgtgctcttt tanctgttct tangtanete gtetggttte gggggtctta getttggcte
                                                                      600
```

<210> 611

660

707

tccttgcaaa gttatttcta agttnaattc attatgcnca angtataggg gttagtcctt

geteatatta tgettggtta taatttteea nettteeeet tgeggta

<211> 663 <212> DNA <213> Homo Sapiens

<400> 611

ccattttata atgegettta tttgattaaa gaatttgeet tetttgtata caetqqaatq ttatattccc tatgtatttt acaqqqttac aaaatqtctc tcattttaaa tattacccca 120 aaagtaatct canaaaaaaa aggttttttg aaattaaact tgacttttaa aaaatcatac 180 ggacaaacaa ctttcaaaca aaactggatt agtaggattt cttgcctgct taactaacat 240 gacanacttc ttgtcccagg cccttctcan aaaaacctca tgtggaaacc aagctanaga 300 taanaattet teeetgatge agttagggga aagggaaagg etagaaactt etttggcaag 360 caattccaca cacaqccatt tatqtqtqaq tqctctqctt caaqcacaqt acqctctttq 420 cagggacggc cagatgttca gagtgggagt ggtacttttc aaccagctaa aagtgcagaa 480 gtcatctant cgtctgcctc ttcccactgc cagtgcctgc agecttgcag caacttttaa 540 ccaccccta tgggactgga atnttqagtt aaaaaqccaa nqctqaactq qctqacqctq 600 tantetecan tqaaaaqqaa atqqqatqaa atqqaaaccq aaaaaccccc nqtnacntqa 660 tga 663

<210> 612 <211> 621 <212> DNA <213> Homo Sapiens

<400> 612

tatattccct atgtatttta caqqqttaca aaatqtctct cattttaaat attacccaa 120 aagtaatoto anaaaaaaa ggttttttga aattaaactt gacttttaaa aaatcatacg 180 gacaaacaac tttcaaacaa aactggatta gtaggatttc ttgcctgctt aactaacatq 240 acaaacttct tgtcccaggc ccttctcana aaaacctcat gtggaaacca agctananat aanaattett eeetgatgea gttaggggaa agggaaagge tagaaactte tttqqcaage 360 aattccacnc acagccattt atgtgtgagt getetgette aagcacanta egetetttge 420 agggacggcc anatgttcnn antgggagtg gtacttttca accagctaaa antgcanaag 480 teatetante gtetgeetet teccaetgee agttgeetge ageettgeag catettttaa ccacccctat nggactggaa tattgaatta taaacccngg ntgaactggc tgangctgtt 600 tctcccttga aaaggaaatg g 621

60

cattttataa tgcgctttat ttgattaaag aatttgcctt ctttgtatac actggaatgt

<210> 613 <211> 637 <212> DNA <213> Homo Sapiens

<400> 613

catttnataa tgcgctttat ntgattaaan aatnnqcctt ctttqtatac qcnqqattqt tatctcccct ntntatttnn qqqqqttaca anttntcnct catttnaant atnncccaa 120 tantntnctn aaaaaaaaga ggtttganga aattaaactt gacttttaaa anatcatgng 180 gacaaacnac tttcaaacaa agctggatta gnaggatttc tngnctgctt aactaacatn 240 aaanacttet tgteecagge eetnetnaaa aaaacetett qtqqaaacen aqenaaaaat 300 aananttete eeetgatgea ntggggggag anggagagge taaaaaette tntggeaane 360 anticcacne aengecatti tinininagi genetgetne nanennagia egetettigg 420 gnggacggcn anntnttnat agngggagtg gtnctttcaa ccagctaata ntqaaqaaat 480 catctagteg netgeetetn eccaetgeea gtgeetgent cettgeaacn tettttaace 540 ccccctangg acnggattat nnagttaana ccgaggntga getggntgac getnteteet 600 ccatttqaaa angaaatqqa taaqatqqaa ccqaaaa 637

<210> 614

688

<211>	622					
<211>						
<213>	Homo Sapie	ins				
<400>	614					
agattatgcc	attgaggcta	agaatagagt	catttttgat	ctaatttatg	aatacgaaag	60
aaagagatat	gaagatette	ctataaatag	caatccagtg	tcttctcaga	aacaaccagc	120
cttgaaggct	acaagtggca	aggaagattc	tatttcaaat	atagccacag	aaataaagga	180
tggacaaaaa	tetgggaeag	tgtcttctca	gaaacaaccg	geettgaagg	atacaagtga	240
caaggatgat	tctgtttcga	acacagccac	agaaataaaa	gatgaacaaa	aatctgggac	300
agtgcttcct	gctgttgaac	agtgtttaaa	caggagtctc	tacagacctg	atgctgttgc	360
acagcctgtg	acagagaatg	agttttcttt	ggaatctgag	attatttcaa	aactatacat	420
cccaaagaga	aagattattt	ctccacgatc	tataaaagat	gtgcttcctc	ctgttgaaga	480
ggctgttgac	aggtgtctct	acctactgga	ccgttttgca	cagcctgtga	caaagggata	540
agtttgcttt	ggaatctgag	aatatttcag	aaccatactt	tacgaacaga	aggactattc	600
tcaacaatct	gcagaaaatt	tagatgctgc	atgtggcatt	gacaaaacag	aaaatggana	660
catgtttgaa	gac					673
<210>	615					
<211>						
<212>						
<213>	Homo Sapie	ens				
	-					
<400>						
			tcatcacttg			60
			ccatccttgt			120
			aaggttggtg			180
			gttatattcg			240
			naagacactg			300
			cettcetegt			360
			ttttctccat			420
			gccttcaagg			480
			ctgtggctat			540
			ctgaaaaaan			600
			aaaatctgtt			660
aaggunggun	gettetgaaa	aacaanetgt	tecanatttt	cccaccaccc	attt	714
<210:	> 616					
<211:	> 688					
<212	> DNA					
<213:	> Homo Sapi	ens				
<400	> 616					
		agaatettte	tegteacttg	tageetteaa	geetgatggt	60
			ccatcctttt			120
			aaggctggtg			180
			gttatatttg			240
			naanacactt			300
			ttttttetet			360
			gtggtttctg			420
			ttgaaaaana			480
					cngaaaaaac	540
			ctctnggcta			600
			gtttctcgaa			660

ttcctccntc cctttttttc tctgggtt

<210> 617 <211> 721 <212> DNA <213> Homo Sapiens

<400> 617

tcatgaaagt cgccagtggc agcaccgcca ccgccgccgc gggccccagc tgcgcgctga 120 aggccggcaa gacagcgagc ggtgcgggcg aggtggtgcg ctgtctgtct gagcagagcg 180 tggccatctc gcgctgcgcc gggggcgccg gggcgcgcct gcctgccctg ctggacqaqc 240 agcaggtaaa cgtgctgctc tacnacatga acggctgtta ctcacgcctc aaqqaqctqq tgcccaccct gccccagaac cgcaaggtga gcaaggtgga gattctccag cacgtcatcg 360 actacatcag ggaccttcag ttggagctga actcggaatc cgaagttgga acccccgggg 420 gccgagggct gccggtccgg gctccgctca gcaccctcaa cggcgagatc agcgcctqa 480 cggccgangt gagatccaga tccgaccact anatcatect tataccgacg gggaaacnga 540 agecatanaa ggegtgggeg ettgeaceae tteegteeca teettgeggg taeetggtet 600 atgenggggt nectaaggae ettggaaaaa acgeteece gtegttgett eetggggaan 660 ggggcgttnc gctgcgcttc ggaacggggt tccttccaac ccgccggtct catttcttct 720 721 <210> 618

60

ttcgggcttc cacctcattt ttttcgcttt geccattctg tttcagccag tcgccaaqaa

<210> 618 <211> 461

<212> DNA

<213> Homo Sapiens

<400> 618

ccaccancta anttattnnt ttaataacaa aaaaacancc ccacaaaact atngtaaaac 60 aatatttcca ntcggtnatc ntngtattnt acaatacaaa ncanttcccn caaaattctn 120 aaaancacca ancttnacca ttttttaaan tttctgcttt ncaaaaanta aaaacncnca 180 attgnantcc caccecctaa attetetggt nactattagg tntncaaaaa gnacenecen 240 ctccncncca ttgcctcanc cncancccca ggctgnatnc atttaagggc ncattggccg 300 ccaateggne tnntcenece neaaateegg caaggenett nggggnaaac ccacaaanca 360 cttattcccc ctngccccct gaatggctgg ggtccgccgg tccctggggn aggcnctcca 420 ccaacncaaa atgcaatcnt ccncagnaac centgeegee t 461

<210> 619 <211> 751 <212> DNA

<213> Homo Sapiens

<400> 619 cccgagggac cacagetgge ageteegggg atgecetegg caaageactg geetegatet 60 actoccogga toactoaago aataacttet egtecageee ttetaccece gtgggetece 120 cccagggeet ggcaggaacg tcacagtggc ctcgagcagg agcccccggt gccttatcgc 180 ccatctacga cgggggtctc cacggcctgc agagtaagat agaagaccac ctggacgang 240 ccatccacgt gctccgcagc cacnccgtgg gcacagecgg cgacatgcac acgctqctqc 300 ctggccacgg ggcgctggcc tcaggtttca ccggccccat gtcactgggc gggcggcacg 360 caggeetggt tggaggeage cacceegagg acggeetege aggeageace ageeteatge 420 acaaccacgo ggccctcccc agccagecag gcaccctccc tgacctgtct eggcctcceg 480 actectacag tgggetaggg cgancaggtg ccacngegge cgccancgag atcaageggg 540 aagagaagga ngacgangag aacacgtcag cggctganca ctcggaagaa ganaanaagg aactgaaggc ccccgggccc ggaccattac ggaacaagtg ctgtcccttg naggagaaaa 660 actgaaggac cgggaaaagg cncatggcaa ttacnccccg ggaaccggtg cccttccggg 720 atattaacna aggetteegg gaactggggg c 751

<210> 620

tetgggatee ttega

<211> 556 <212> DNA <213> Homo Sapiens <400> 620 aatacaacgt ttaatcatct ggttgatcaa aaaatgcaat gctcagtcta ggaacagcag 60 caaaaatagc ganagacacg ggacttttat acaaaaaaat ttgttgctta caaaacatat 120 gcaaaaaaag cttaaaaaaa ccaaaaacca aaggcagcat ccttgctaat tttcatctac 180 attaanaaaa aaaaaatctt gtaactaatg tttttatttn ccttaaaaaa aatatttcqc 240 ttaggcacaa tttgctggtg gctttaaaaa aataagccag gtttccacag catccccctt 300 gagtgatatn tttccatttc tccgcttttt atagttaagg cattttttnc tnctctqaca 360 aagtgtatgt tttqttqctt qctttcaqqt tttqtttact qqaaaaaaaa aaaaatqccc 420 tgtcanccca ngcaanaggg ccaanatgca attcagggat centgggaca ggtccaaaat 480 gaccoggggg ctgaaattcc gggacggggg aacaaggcnn tttaatngta gqccaqqqcc 540 canggaaccc tgaacc 556 <210> 621 <211> 708 <212> DNA <213> Homo Sapiens <400> 621 ccacttnaat teetttatne aneaatatta teenaaaagg aaaaateagg atttacaaaa acaatttaan tgcaatataa aaccetacta aatacaaata caattncaca aacnentatg 120 caacaaaaac ttgtttaaat ngttccttna atttnnacta cttaaaanca taggtntaaa 180 ggaaaaacnt ncaaactggt ccacttgggc ttnttaccag gcaaagnaac cctgcttncc 240 aaaaactnat atattccaaa tteneggeat ntggnaatnt tnccatggac nctgnatett 300 aacaaatgct atantnttta caaaactacn cccncaaaaa aaccccaagg aacctgcagg 360 ctaancccta tncttttaaa gggctnaagg aaccaaacct attttaancc tnttngtttg 420 cnccatgcaa aactttatgn aaaaccccca aactaggcta tttancnnct nccatnaatg 480 gnececaaat catninatne taeggeataa acaacanetg eestatitae neggaacetg 540 caaanctcac aagnaatgtg aattngcnct ngggantcaa tgttnccggg tnaattatct 600 tggatnanaa conttttcta catnactatt gaaaaaacct gtggtttctt gctttttaac 660 aaatnnggtg ttootttgcc coccccctt atttttcaag ggetgggt 708 <210> 622 <211> 675 <212> DNA <213> Homo Sapiens <400> 622 atcacagtcc agagagtcct agaggaggac gagagcataa gancttgcct tagtgaagat 60 gcaaaagaga ttcagaacan aatagaggta gaagcagatg qqcnaacaga aqagattttq 120 gatteteaaa aettaaatte aagaaggage eetgteeeag eteaaatage tataaetgta 180 ccaaagacnt ggaagaaacc aaaagatcgg acccgancca ctgaagagat gttagaggca 240 gaattggagc ttanagctga agaggagctt tccattgaca aagtacttga atctgancaa 300 gatntaatga gecaggggtt teateetgaa agagaeeeet etgaeetana aaaagtgaaa 360 gctgtggaag aaantggaga anaagctgag ccaqtncqta ntqqtqctqa qaqtqtctct 420 gagggtgaag gantagatgc tacttcaggc tccncagata gttctqqtqa tqqqqttacn 480 tntccatttn aaccngaatc ctggaagcct actgatnctg aaggtntgan gcnntntgac 540 ngggagttet getggactte cagtteatge etgeetggta tnetttnece gagggeetge 600 ctcctntcag tgatttggtt cttgacaaga tccnccntcc cccttttgcc aatgccgaac 660

675

<210> 623 <211> 713 <212> DNA <213> Homo Sapiens <400> 623 gctaaacatt tttttaagta tgagtccttg tttaaaaaga aaagattaaa acagaaaata 60 ttttctataa ataatacatg tattttggtt ttagtgctcc cgccctaagg tttgaagttt 120 actituated agracettit tectecatga teacettiti tietettiee ceteteceae 180 tegtgcacae gtgggggttt etgegagaat tggcettget geaetgtgat tggegaanae 240 gtgaaacttt ttaaaaaaat acttaaattg tttcttttgt ttcattttgt gtatttgaag 300 ttttagttat cctcagactc ctcttctgct tcccgcagcc acgtgaagaa tgccgtgaca 360 gatttcagag ccacgccctt cccattctgc tctgcagggt ccttgctgct ctcccatttg 420 tagaaggcat cctcggagat cacctcctcg tcatatagac aatcaaaaaa catccgcagc 480 aaattggcag gttgatcaag ttttactatc gatgcttgta gtgcataaag tgctgcagtt 540 cottotetgt atotgantet aggtacttga gtaagategg cactetetge ttgataacag 600 caqtqtccac tctgaaggta naagaatcng gttattatag cttgctttaa caaacageng 660 tenttaaage tetaaggaat gttangtgaa atneaetgga tttegtetaa att 713 <210> 624 <211> 554 <212> DNA <213> Homo Sapiens <400> 624 cattenagaa agatnttaca caeggagttt neteantatt gggeteaaeg ggaagetgae 60 tttacggana ctctgcttca agtaacgana gatattanaa ganaatgctg gancgtcgtt 120 tggctatctt cnaggatttg gttggtaaat gtgaccctcg agaanaagca gcgaaagaca 180 tttntgccac caaagttgaa actgaagaag ctactgcttg tttagaacta actttnatcc 240 aattaaaget gaattageta aaaccaatqq aqaattaate tenacenene aenanttene 300 ccagaganaa natgaatccg attcattgat tcaagagctt gagacatctg ntaaganaat 360 aattncacan aatctggaga attnnagaat tgatnaatat nattgatcnn tcgaagatac 420 tatcancgaa tttcagaacc tnangtctca tatggaaaac tcntttaaat gcnatgacaa 480 ggctgataca tcttctttaa taataaacaa taaattgatt tgttatgaaa cagttgaagt 540 acctaaggga cagc 554 <210> 625 <211> 551 <212> DNA <213> Homo Sapiens <400> 625 gactgcatgt tctcatttat ttatgggatc taaaaataaa atcaattgac ctcatgggca tacanantaa aaaaatggtt accagtggct ggtaagggta ctqacqqttq caqqqqqqq 120 tggggatggt taatgggtac aaaaacaaat aagatnaaaa gaatgattta atatctgata 180 gcacaatana ntgactataa tcaataataa cttacttqta tatttttaaa tgatctaaaa 240 aatgtaattg gattatetgt aattcaaagg aaaaatgett gaggggatgg ataceteatt 300 ctccatgata cacgtntttc acattgatgc ctgtgtcaaa acatctcaca taccccqtaa 360 atatatacat gtactatgta ccacaaaatg tttacaaaat aagtganaca ttctaattaa 420 agactgaaat ctttttctaa ataatgtata tacatgtttt gtgatctgta cacacttatt 480 ctccaaatcc taactntant cccaacanat atnttaaatc cttgtttanc ngaataagtt 540 aaaaaaatcc t 551

<210> 626 <211> 680

<212> DNA <213> Homo Sapiens

<400> 626

atttggtaac aggattaaaa agaaattttt aatteettgt etetettetg atqqetqaac 60 agaactgogg tgtcaaatgg aaagcagcac acaaqaattc ccttqcaqac cttqatcttt 120 cgcanaaatg caaagacgcc tgagttatac aacttgcaat tattattttc tanacagaag 180 tgccaactgt tgtgctttcc agtgtatcag tggttgctac attctccttc ttgtcttcqq 240 gtttcatqgc aggaaacaga agtacttcct tgatgttgtt ggagtccgtg agaaacatgg 300 cgactcgatc aatgcccatg ccccagccag ctqtqqqqqq caqcccatat tccaqqqcag 360 tacagaagtt ttcatctatg aacatggcct catcatcacc tgcagccttg gccttggcct 420 gttetteaaa aanetgeege tgeegeatgg gateatteag eteagtatae geattgeata 480 tototttott catgacaaac agotcaaanc gotcagtcag acctotttaa ancggtgcca 540 tttaaccnaa gggccattat ctgtgggtga tcacagatga atqtnqqatt qatqcaagtc 600 acttccanga actccccaac aancttgtca aggaacctgg ctgtggtcca angtggaagg 660 catccacanc ttttgccccc 680

<210> 627

<211> 753

<212> DNA

<213> Homo Sapiens

<400> 627

acaaatatga acgtctgaag gcaaaccagg tagctactgg cattcggtac aatgaaagga 60 aaggaaggtc tgaactaatt gtcgtggaan aaggaagtga accetcagaa cttataaagg 120 tcttagggga aaagccagag cttccagatg gaggtgatga tgatgacatt atancagaca 180 taagtaacag gaaaatggct aaactataca tggtttcaga tgcaagtggc tccatgaqaq 240 tgactgtggt ggcanaagaa aaccccttct cantggcaat gctgctgtct gaagaatgct 300 ttattttgga ccacggggct gccaaacaaa ttttcgtatg gaaaggtaaa qatqctaatc 360 cccaagagag gaaggctgca atgaagacag ctgaagaatt tctacagcaa atgaattatt 420 ccaagaatac ccaaattcaa gttcttccag aaggaggtga aacaccaatc ttcaaacagt 480 tttttaagga ctggagagat naacgatcag agtgatgget tcgggaaagt ttatgtcaca 540 gagaaagtgg ctcaantnna acnaattccc tttqatqcct cnnaattacn caqttctccq 600 cagatggcag cccagcacaa tatggtggat gatggttctg gccaagtgga aatttggcgt 660 gtncaaaaca atggtaggat ccaagttgac cnnaacteet atggtgacte ccatggtggt 720 gactgctact tcatactcta cacctatccc tga 753

<210> 628

<211> 675

<212> DNA

<213> Homo Sapiens

<400> 628

ggtgtttcca aaggctttta ataaggttaa aaaaaaaata aaatnccnct taaaaaataa 60 cnettanean ttaatgaeat caaantenen ttgaetaaaa aaggaaaata neaaccaatt 120 gttaaancca ccttaacata aaccttatnq caattntaca cntcttttqa acncaatcta taaaaaaaaa aataactncc anggcattac aacttttnct ctggcatntt aaaaaacaac 240 tetnactaat ggetaatgea ttataaaatt neetatetna caaatettne taaattatge 300 atagtatttt acttttnaaa ggtcntaaaa aaaatataaa tcanttncca taaaanctaa tatnggccca taacaaaant tocotncagg ttattttaat ntnttaacnt aaaaaaacno 420 caqntqaaaa aaaattncaa nccaaaacta accnttaaaa aataggentt ngqttnaqqt 480 taatttttt tttttttt ttgnaaanaa antenetntt geecagnetg gattgtggtg 540 genecaated tggetcactg caacetcage cteetgggtt caageaattt neetgtetca 600 gccttccaan ttccngggaa tacaggggtn cnccaccacn cccagctaaa tttttttttt 660 tttttttant aaaag 675

<210> 629 <211> 677 <212> DNA <213> Homo Sapiens

<400> 629

aagatcagcg atatcacgcg teeceeggag categegtge aggagecatg gegegggage 60 tataccacga agagttegec egggegggea ageaggeggg getgeaggte tggaggattg 120 agaagetgga getggtgeee gtgeeeeaga gegeteaegg egaettetae gteggggatg 180 cctacctggt gctgcacacg gccaagacga qccqaqqctt cacctaccac ctqcacttct 240 ggctcggaaa ggagtgttcc caqqatqaaa qcacaqctqc tqccatcttc actgttcaga 300 tggatgacta tttgggtggc aagccagtgc agaatagaga acttcaagga tatgagtcta 360 atgactttgt tagctatttc aaaggeggte tgaaatacaa ggetggagge gtggcatctq 420 gattaaatca tgttcttacg aacgacctga cagccaagan gctcctacat gtgaaqqqtc 480 qtanaqtqqt qagagccaca qaattcccct taqctqqqac aqtttcaaca aqqqtqactq 540 cttcatcatt qaccttqqca ccqaaattta tcanttqqtq tqqttcctcn tqcaacaaat 600 atgaacgtet gaaggcaaac cangtaneta etggcatteg gtncaatgaa aggaaaggaa 660 ggtctgaact aattgtc 677

<210> 630 <211> 665 <212> DNA

<213> Homo Sapiens

<400> 630

gagacagagt ctctgttgcc caggctggag tgtggtggcg caatectggc tcactgcaac 60 ctcagcctcc tgggttcaag caattttcct gtctcagcct tccaagtagc agggactaca 120 ggcgtgcacc accacgcgca gctaattttt ttqtattttt aqtaaaqqcq aqqtttcqcc atqttqqcca qqctqgtctc gaaatcctga ccccagtqat ctqcctacct catcctctca 240 aagtgctggg attacaggtg tgagccaccq cqcccaqcct taattttcaa aaqacaaata 300 agcaaaaagc ttttcccgtt cctctcccaa aacagcaatg agataactgc cttgtaatgt 360 ttgtttgctt tttacaaata ccaatttacc acttgctgga atcccagccc aggaaccagc 420 ctgtgaatgt gggtggctca tggccctgtt ttatgatgac aattggtgtc ctcttgtctc 480 ttccagaagg gtctgtctca aggtacattt tggcanactt caaagattct tttttctcaa 540 cttcattagc atctttgcca atccaaataa atatctgttc ccaagcatct aqtaacatqa 600 catcatcttc agctaaatca tcctgggtga actctccctg qaatctcttc aataacaaat 660 665

<210> 631 <211> 698 <212> DNA

<213> Homo Sapiens

<400> 631

ctgaggagct ggtggtcttt gaggatttga atgtatttca ctgccaggaa qaatgtgtga 60 gettggatee tacteaacaa etcaegteag agaaggaaga tgacagcagt gteggggaaa 120 tgatgttact ggtcaatggc agtaatcctg aaggtgaaga tcctgagagg gaacctgtan 180 aaaatgaaga ttatagagaa aagtottoag atgatgatga aatggattot toottggtot 240 ctcagcagcc tcccgataac caggaaaagg aacgactaaa tacatccatt ccacaaaaaa 300 ggaaaatgag aaatctgtta gttaccattg agaatgatac tcctctagag gaactctcaa 360 aatatgtaga catcantatt attqccctta ctcqaaatcq qaqqacaaqq agatqqtaca 420 cttgtccact gtgtgggaaa cagtttaatg aaagttctta cctcatttcc caccagagga 480 cccacactgg agaaaaaccc tatgactgtn ntcactgtgg gaaaagcttc aatcatnaaa 540 caaacctcaa taaacatgag cgaattenta caggagagaa accttattcc tqttctcagt 600 gtggaaaaaa cttccgtcng aattctcatc ggagtcgtcc tgaaggaatc catntaacgg 660

agaagatatt aagtgtccan aatgtgggaa aacctccc 698 <210> 632 <211> 466 <212> DNA <213> Homo Sapiens <400> 632 atcacaaatt gtaaatatta ttgaaattga ttgcaaattt agatcacata caaatgagag 60 totgacatto aactgtttto otatattoca aagtaaacaa ttootttoaa cactgaagac 120 ttaaacaggt attcttagag ggttatatga attgctatca gaagctgttg gctaacaagc 180 cagtaatttg gttctttcac canaacacag ttccagataa gcatctttgc actatttctc 240 aantatgaat ccccatgtgg ggggaaaacg gatatacttt caatagacac aagtcactct 300 ttgccttcca agtaagcana ctccagattc atcttcaaag tgttgggaaa ngggatctgt 360 gacetginea tiateatata aeticaaaaa ggaaagetee tianteeaaa aageetanat 420 getgaggtat agecettgaa atgttttett eeetgtnaat tteeta 466 <210> 633 <211> 734 <212> DNA <213> Homo Sapiens <400> 633 cacatacagt ctttgtttta atgtttattg gtagaaacag atcttcaatg catactttgt 60 gtttatataa actctacatt ctcttaaagg ttttcgtttt gttttcactg gagattttta 120 gcctccaagt gaacttaaca tattgcctat gcatctgatt ctttatanac ttttanattt 180 taaaactaaa tttganaaac catgcatact gtatacctta tttaataatc caaanaattg 240 tttgcacttt caaaaaagtt acaaaaaggc tgaacacaag ttaaataacc tatatgatgt 300 aaattttcca tttctgaata ctttttcagt attatatatt gcttgctgtc taataagtta 360 gattqtcaqa nacqcttcaq taaattatct ctactttaaa attatatctq aatccccttt 420 ctctqanatq aacttqccaa tattaaacat tqtqccatat qcaqtattan cccaaaagct 480 taaataagaa ccaaacttgt agactgaata ttttaacctt aaaattatat acctatatat 540 ncacctatgg tatgctgcat attaaattta acatttcaag taacatatat atagcaaaca 600 ttcagccaaa tactctttca tgaaaagata ctgtccttaa aataaaaagt tantgaaaag 660 cttatttaga ccnaatgtct aaatataant nctaageeta tgaaacttga anctaaagte 720 tgctgtncta ttta 734 <210> 634 <211> 822 <212> DNA <213> Homo Sapiens <400> 634 ctcctgtgct tacacctgta gaaaaacacc agagcagaga gtatctcaag tqatgaaqaq 60 gttcatqaat ctgtggattc agacaatcag caaaataaaa aagttgaagg tggatatgaa 120 tgtaaatatt gtacttttca aactccaqat ctaaatatgt ttacttttca tgtggattcg 180 gaacateeca atgtagtget aaatteatee tatgtttgtg tegaatgeaa ttttettace 240 aaaaggtatg atgcactttc tgagcataat ctgaaatatc acccaggaga agagaatttt 300 aagttgacta tggtgaaacg taataaccag acaatctttg aacaaacaat aaatgatctg 360 actittgatg gtagtittgt taaagaggag aatgcagagc aagcagaatc tacagaagtt 420 tottottogg gaatatotat cagtaaaact cotatoatga aaatgatgaa aaataaagtg 480 gaaaataaac ggattgcagt tcatcataac tcagttgagg acgttcctga agagaaagag 540 aatgaaatca aaccagaccg tgaagaaatt gtagaaaatc caagttcttc agcttctgaa 600 totaatacaa gtacttocat tgtaaacaga atacatccaa gtactgccag cacggtagtg 660 acceageage agttectece tggattggge ceaggtgata actgetgtnt etgeteegee 720

tgenttggat aacaacecee tttttactta accectacan ce	ctacaatge 780 822
	022
<210> 635	
<211> 819	
<212> DNA	
<213> Homo Sapiens	
<400> 635	
accoatttct aacaattttt actgtaaaat ttttggtcaa agttctaagc t	taatcacat 60
ctcaaagaat agaggcaata tatagcccat cttactagac atacagtatt a	
gaatatgagg acaagctcta gtggtcatta aaccccctca gaaagtctaa g	attcagaat 180
gtctccatca tattagaaga aaaatgtact gtattaaaat ttaaattgca t	
ttgtttttta attagtgttc tatttacatt gcanaacttc caccaactgc ag	gtagtttaa 300
ctttggcaca acattaagtt ccatttettt tgggtattgg atcetgettt t	
atgccccaaa acgttttcaa tgtcatcaaa gattgggcaa attcacagta a	
cttgagttga agaattgatt ctccttcaac gttttaggca gatttcagtc a	
gacagettee gtttcacatg tegtggaagt cecaagtgte actateatet g	
catectette etggteatea ataactteat etteeteete atttteetea a	
tacctaattc tgatcttctc tgtctttctg caaaccactc tctgacctgc t	
tatgtgattt gttaacaaat tcatcaaggt cttgctcatt aaaaaacttg t	
tataateett aantittigee giteeagitt taaatittat gaatnaatgg teecagitgit aatteetitt ggeteeteea aggegeeea	
cocagetyte aactootte ggotootooa aggogooda	819
<210> 636	
<211> 704	
<212> DNA	
<213> Homo Sapiens	
<400> 636	
aaaaagttat ttatttatto ttttttttt ttttttttt ttggtaaggt t	gaatgeact 60
tttggttttt ggtcatgttc ggttggtcaa anataaaaac taantttgan a	
aaaggaaaaa aatattttcc aaantccatg tgaaattgtc tcccattttt t	ggettttgg 180
gggggttcag tttgggttgc ttgtctgttt ccgggttggg gggaaagttg g	
aggganccag gttgggatgg agggagttta caggaagcan acagggccaa c	gtcnaagcc 300
naattootgg totggggcac caacgtocaa ggggggccaca tonatnatgg g	
ggtcttggtg gttttgtatt caatcactgt cttgccccag gctccggtgt g	
necategaca gtgacgetgt aggtgaaneg getgttgeec teggegegga t	
gttggaaccc tggagganca gggccttctt gaggttgcca gtctgctggt c	catgtaggc 540
cacgetgtte ttgcantggt angtgatgtt etgggageet eggtggaeat e	
aaggtcacct ggatgccaca tcngcanggt cggaaccctg gccgccatac c	ccaactggg 660
aatccatcng tcatgctctc cccgaaacaa aacatcctct tgtt	704
<210> 637	
<211> 693	
<212> DNA	
<213> Homo Sapiens	
<400> 637	
gaaagcaaat ttcttttaat ganaactcaa aattaaactt caaagggacc c	aacgtcata 60
cttccattca gggacttgat acaaaaaatt tagtttgaac tgctattagc a	
agccaccttc aaatgaatct tcaaaattgga aaatactgct tcaccacctg t nttgcaaatg gaataattta gtatggtttg tagctatttt gatnaccacc t	tggggataa 180
acetteccat aaccaetetg etggteacea cetettecae aagetettee t	
databases seggedated teleficial dayoffice t	gcaaateet 300

360

cetetaaate eccaetgttg etgttgetga tattgtneet tegacatgge taettttatt

tcacatttac taaaaccaac attgtggtat ttcttttcca ttatcttctt cactggttct	420
tottoottaa aggtaataaa gcaaaaccca cgcotottat tggtottgtt gtocatgggg	480
agetetatgg attecacete accaaaacca ccaaagtact ccettattt etetteaggt	540
gtatctggan aaaggccacc ancnaaaatt ttttaaccgg ctcttttgtt tccatggctt	600
tgggcctttt angatcaatc accttcccca ttcaatttat gttctttttg gatccatgaa	660
cctttntcta cnccctcccg aattccttaa ata	693
coronicota encoccocy anti-coccaa aca	0,5
<210> 638	
<211> 619	
<212> DNA	
<213> Homo Sapiens	
<400> 638	
gcactctgaa gttagatcct atcacagggc gatcaagggg ttttggcttt gtgctattta	60
aagaatcgga gagtgtanat aaggtcatgg atcaaaaaga acataaattg aatgggaagg	120
tgattgatcc taaaagggcc aaagccatga aaacaaaaga gccggttaaa aaatttttgt	180
tggtggcctt tctccagata cacctgaaga gaaaataagg gagtactttg gtggttttgg	240
tgaggtggaa tccatagagc tccccatgga caacaagacc aataagaggc gtgggttctg	300
ctttattacc tttaaggaag aagaaccagt gaagaagata atggaaaaga aataccacaa	360
tgttggtctt agtaaatgtg aaataaaagt agccatgtcg aaggaacaat atcagcaaca	420
gcaacagtgg ggatctanag gaggatttgc angaagagct cgtggaagan gtggtggccc	480
cactcaaaac tggaaccang gatatantna ctattggaat cnaggctatg gcaactatgg	
atatnacago coaggitaco giggitinitgo aagatatgao incactggit acnacaacta	600
ctatggatat ggtgattat	619
***************************************	013
<210> 639	
<211> 694	
<212> DNA	
<213> Homo Sapiens	
(213) Homo Bapiens	
<400> 639	
cggcggcgcc attaaagcga ggaggangcg agagcggccg ccgctggtgc ttattctttt	60
ttagtgcagc gggagagagc gggagtgtgc gccgcgcgag agtgggaggc gaagggggca	
ngccagggan aggcgcagga gcctttgcag ccacgcgcgc gccttccctg tcttgtgtgc	
ttcgcgaggt acagcgggcg cgcggcancg gcggggatta ctttgctgct agtttcggtt	
cgcggcagcg gcgggtgtat teteggcggc agcggcggag acactateae tatgtcggag	
gancantteg geggggaegg ggeggeggea neggeaaegg eggeggtagg eggeteggeg	
ggcgaacang angganccat ggtggcggcg acacangggg cancggcggc ggcgggaacn	
gaccgggacc gggggcggaa ccgcntctgg angctccnaa gggggcnncg ccnaatccga	
aggggcgaaa attgaccccg tatgaaccaa gaagatgaat ggaaaatgtt tatangaagc	
cttanctggg acactnecca gaaagatctg aaggactact tttccnaatt ttgggtgaaa	
ttgttaaact gecetettga aattetnatn etateeengg ggenateaaa ggggtttttg	
gettttttcc tattttaaac aaateeegaa aaat	694
<210> 640	
<211> 728	
<212> DNA	
<213> Homo Sapiens	
<400> 640	
cgccactgcn gcaggaggcg tgaggggata aaaacattca gatggcagat cacagtttt	60
cagatggggt teetteagat teegtggaag etgetaaaaa tgeaagtaac acagaaaage	
tcacagatca ggtgatgcag aatcctcgag ttctggcagc tttacaggag cgacttgaca	
	180
atgtcottoa caccocttoc agotacatog aaactttaco taaagcagta aaaagaagaa ttaatgcatt gaaacaactt caggtgagat gtgctcacat agaagcaag ttctatgaac	180 240

gagaatttat atgaagagga cagcggcaac tcagaaatgt acacctgcag	caccggcgat agagaaattg ggctgaagag ggacatgctg gatnttaaag	gctgaaccaa gctggagaca ccagatccca agtgaattan ttgaaattt	cgctatacca cagatgogga tgaaaagtaa naggaattcc tccaggaaat ctgaccctgg ttaccaactc	atcggaatgg agtagtcgtc agagttctgg atgatgaacc acagcctatg	cacagtgaaa acagaaaaag tttaccatct aatcttgaaa tcttttgtgt	360 420 480 540 600 660 720 728
<211 <212	> 641 > 732 > DNA > Homo Sapie	ens				
<400	> 641					
acctaattag gcataagtca ctggttcac gggctcacat tgctctgttc ttggactaca ccgagcctca gcgggctca gcgggactat caaaatcttc aaaaggactc tgctttnent ccccgttcac	atagaagttc actgtcaata aagttccctg aggaaactgg ctcanacttc tatctggctc ggccactctg tacattgtca ccgctcacgg atccagtgat attgggtact ggaaggtntt aa	aatgtttgtt aagcttaggt caatcacctc tcctcttcaa atgatgtaat caccaacaga tcatcttcta aaaaagtgtc ctccatcccc gtttcgtaat	atttetttg gtggcaggae ttgaaactgct gcgtattece aaaaagatta gataaggace ttggcetecec caattteaaa ggatggttte tgttetaaca ttettneett	ctccataaaa tattgttgag tcacagacaa cccacaacaa ggcatggggg caggtggaag agtgaagtac atcagaaggc caatggattg gtgctcaac	gagatattee teactaggea etgettttee ggacageage tttectaage ececettee ageacageee aatgtgaatt aagaaattga ettatgette	60 120 180 240 300 420 480 540 600 720 732
<211 <212	> 642 > 582 > DNA > Homo Sapi	ane				
1213	- nomo bapi	-115				
gctttcttc tctcagcctc naaggcgtg cttccattc tggggtcatc tggcatttc tctttegttc gganttttct tctttttttc tctctgttc tctctgttc tctc211 <212 <213	ttgttccatc cctgatttcc cttttctcta tctatcatca tcttcttctt tctgatttcc ttcaagtttt tttttctctt	ctctggagct tcaagctcct tcacgcaacc tcatagtctt tcttcttctc caattcttaa cttcgttcgt tctcgctccc ctctctctct	gctcttgctt ctgcatctgg ccttctctct ttttctgaaa ctaanaattc tttcagcttc ggcgctcttg atgcatcttc gttcctctc ctctctttcc	atctggatgc cttcctatct agcacttcct ttttagtcgt tttctcatat ataancagct ttcatcttct cnctctctct	ccttctgcca cgttcatctg ctgtaatatt ttagcttctt tcccgggttt tctttctctc tctcggtccc	60 120 180 240 300 360 420 480 540 582
aagaaaagct	caagtttcca	agtctcttaa	gggagcgatt	aggcatgtca	gctgatccag	60

aagaaaagot caagtttoca agtotottaa gggagogatt aggoatgtoa gotgatocag 60 ataatgagga tgoaacagat aaagttaata aagttggtga gatocatgtg aagacattag 120 aagaaattot tottgaaaga gocagtoaga aacgtgggaga attgoaaact aaactcaaga 180

```
cagaaggacc ttcaaaaact qatqattcta cttcaqqqaq caaqaagctc ctccactatc
                                                                       240
cgtatcaaaa ccttctctga ggtcctggct gaaaaaaaac atcggcagca gggaagcaga
                                                                      300
gagacnaaaa agcnaaaagg gatacaactt gcatcaagct aaagattgat agtgaaatta
                                                                      360
aaaaaacagt agttttgcca cccattgttg ccagcagagg acaatcagag gaqcctqcag
                                                                      420
qtaaaacaaa gtctatgcag ggaggtgcac atcaagacgc tggaaganat taaactggag
                                                                      480
anggeactga gggtgeagea gagetetgag ageageacea geteecegte teaacacgag
                                                                      540
gccactccag ggggcnaggc ggctgctgcg aatcaccnnn agaaccggga tgaaagaaga
                                                                       600
gaagancett ccgggaaggg aatgaagttg attetcagag engtattaga aengaageta
                                                                      660
aagangetee gggtgagaac neeggggttg accteectaa aatteeaqte caqaqatqtn
                                                                      720
agacctgaaa gagaacccct gccganaccg ccqqqaaaqq qanaaatccq tcttqacccc
                                                                      780
cttc
                                                                      784
      <210> 644
      <211> 749
      <212> DNA
      <213> Homo Sapiens
      <400> 644
cctacatcag ttttatttaa aacacaaaca agtatttctc tttctgtaag ggcaaatggt
                                                                        60
tcaaataatg cggaacacga aacattgact aatacaagtg ctttaaatat gaaacaaaat
                                                                       120
tattttttaa aaaagcaaaa naataaagaa tatatacaaa agggacctgn aatctgtaag
                                                                       180
gtgattccaa aaacnaaata antagaaaat ccatggtgaa acctgaacat tctacctctg
                                                                      240
ctttggagaa gggctatcat acaacattca gtcagctqaa natqqattqq tanagqtqtg
                                                                      300
totatacata aacttcaqtc atttttqctt qtqcanaatc atcccaatct tcccaanact
                                                                      360
gaatgggcag tootgtggct ttottcottt tooatattoo caacaaggct acgtgaaqtt
                                                                      420
caactettga tgageegett acaacageag tteettaggg agecaacatg acaggtgggt
                                                                       480
canatttccc tatgagaaac aaaactggcc acctacagca aaatatcaaa atgggtaagt
                                                                       540
cetteettee tetteeteet gattatatae aacatatete ettteaagae tattatttee
                                                                       600
atcatgetta tteetteaca aatetaaaee ttgaggtgat atgaaggaaa ecanenteaa
                                                                       660
aaaaaagaaa actcaattcc gaaatqaana aaactqqqen nqqtatncaa tacnccccan
                                                                       720
aacatotoca tatecetgge ecagttace
                                                                       749
      <210> 645
      <211> 751
      <212> DNA
      <213> Homo Sapiens
      <400> 645
agactttcct acatcagttt tatttaaaac acaaacaagt atttctcttt ctgtaaqqqc
                                                                        60
aaatggttca aataatgcgg aacacgaaac attgactaat acaagtgctt taaatatgaa
                                                                       120
acaaaattat tttttaaaaa agcaaaagaa taaagaatat atacaaaagg gacctggaat
                                                                       180
ctgtaaggtg attccaaaaa cgaaataagt agaaaatcca tggtgaaacc tgaacattct
                                                                       240
acctctgctt tggagaaggg ctatcataca acattcagtc agctgaagat ggattggtag
                                                                       300
aggtgtgtct atacataaac ttcagtcatt tttgcttgtg cagaatcatc ccaatcttcc
                                                                       360
caanactgaa tgggcagtcc tgtggctttc ttccttttcc atattcccaa caaqqctacq
                                                                       420
tgaagttcaa ctcttgatga gccgcttaca acagcagttc cttaqqanec caacatqaca
                                                                       480
ggtgggtcag atttccctat gagaaacaaa actggncacc tacagcaaaa tntcaaaatg
                                                                       540
ggtaagteet teetteetet teeteetgat tatntacaae atateteett teaagantat
                                                                       600
tatttccatc atgettattc etteccaaat ctaaacettg aaggtgattt gaagggaaac
                                                                       660
enceateenn aaaaagaaaa acccatteee aaattgaaaa aaaactngge agggtataca
                                                                       720
atacaccccc canaaactcn ccaattttcc c
                                                                       751
```

<212> DNA

<213> Homo Sapiens

<400> 646

cctacatcaq ttttatttaa aacacaaaca aqtatttctc tttctqtaaq qqcaaatqqt 60 tcaaataatq cqqaacacqa aacattqact aatacaaqtq ctttaaatat qaaacaaaat 120 tattttttaa aaaaqcaaaa qaataaaqaa tatatacaaa aqqqacctqq aatctqtaaq 180 gtgattccaa aaacnaaata agtagaaaat ccatggtgaa acctgaacat tctacctctq 240 ctttggagaa gggctatcat acaacattca gtcagctgaa natggattgg tagaggtgtg 300 totatacata aacttcagtc atttttgctt gtgcanaatc atcccaatct tcccaanact 360 quatogogoaq teetqtqqet ttetteettt teeatattee caacaaqqet acqtqaaqtt 420 caactettga tgagccgctt acaacagcag tteettagga gecaacatga caggtqqqte 480 aaatttccct atganaaaca aaactggcca cctacagcaa aatatcaaaa tggqtaantc 540 cttccttcct cttcctcctq attatataca acatatctcc tttcaaqact attattccat 600 catgettatt cetteacaaa tetaaacett gaagtgatat gaangaaace neenteeaga 660 aaagaaaact cnantcanaa atgaaaaaaa ctggcaggta tncaatacac cccaaaacnt 720 ctcaatntcc tggcacanta caatccattg ttctgctaca 760

<210> 647

<211> 1041 <212> DNA

<212> DNA

<213> Homo Sapiens

<400> 647

caaaggcgac agctgcccat tccgtcactg tgaagctgca ataggaaatg aaactgtttg 60 cacattatgg caagaagggc gctgttttcg acaggtgtgc aggtttcggc acatqqaqat 120 tgataaaaaa cgcagtgaaa ttccttgtta ttgggaaaat cagccaacaq qatqtcaaaa 180 attaaactgc gctttccatc acaatagagg acgatatgtt gatggccttt tcctacctcc 240 gagcaaaact gtgttgccca ctgtgcctga gtcaccagaa gaggaagtga aggctagcca 300 actttcagtt cagcagaaca aattgtctgt ccagtccaat ccttcccctc agctgcggag 360 cqttatqaaa qtaqaaaqtt ccqaaaatqt tcctaqcccc acqcatccac caqttqtaat 420 taatgctgca gatgatgatg aagatgatga tgatcagttt tctgaggaag gtgatgaaac 480 caaaacacct accetgcaac caacteetga agtteacaat ggattacgag tgacttetgt 540 ccggaaacct gcagtcaata taaagcaagg tgaatgtttg aattttggaa taaaaactct 600 tgaggaaatt aagtcaaaga aaatgaagga aaaatctaag aagcaaggtg agggttcttc 660 aggagtttcc aagtetttta ctecaccetg ageeegttee aagteetgaa aaagaaaatg 720 teaggactgt ggtgaaggac agtaactete tecaacaaac aanggagaaa gaaneettgg 780 qtaqattqaq tcctactqan aqacqqqqa aacqaaaant tcaqcaaqcq qtqacaaqtq 840 atcetecaat aaagegttac cetgeacaaa ggetagggaa aaaaanttaa ancecanaaa 900 actaacattg acaaaaccac caaagaaagc tcaagnttcc aagtccccta agggaccgan 960 taagcatgtc aaccggatca anataatgng gntgcaacag ttaaagntta aaaaattggg 1020 qaaattcaqt taaaacattt q 1041

<210> 648 <211> 810

<212> DNA

<213> Homo Sapiens

<400> 648

coctacatca guttaatta aaacacaaac aantattot outtougaa gggcaaatgg 60
ttoaataat goggaacacn aaacattgac taatacaant guttaaata tgaaacaaaa 120
ttattutta aaaaagcaaa agaataaana atatatacaa aagggacotg naatougtaa 180
gotgattoca aaaacnaaat aantanaaa tocatgguga aacotgaaca tootacotto 240
gottuggana agggotatca tacaacatto antoagotga aaatggattg gtaaaggugu 300
gotgatacaat aaactucant cattutuggu tytgocaaaat catoccaato tococaaaac
tgaatggga gtootgtggo tutottoctt tuccatatto coaacaaggo tacntgaant 420

tcaactcttq	atnagecget	tacaacagca	gtteettagg	agccaacatg	acaggtgggt.	480
	tatgaanaaa					540
	ctcttcctcc					600
	attccttcac					660
	accaattcan					720
	ccctggcaca					780
	gaataancnc		agogooogo	cacageccae	aaaacaaaca	810
ccggcagccc	gaacaanene	accentice				810
-210	649					
<211						
	DNA					
<213	> Homo Sapie	ens				
- 100-	> 649					
	nttttattta					60
	gcgnaacaca					120
	aaaaancaaa					180
	aaaacaaaat					240
	agggctatca					300
	aaacttcant					360
	ntcctgtggc					420
	ataanccgct					480
caaattcccc	tataaaaaac	aaaactggcc	ncctacanca	aaatatcaaa	atgggtaatt	540
ccttcctncc	tctnccncct	nattatatac	aacatttctc	ctttcaaaac	tattattncc	600
atcatgcttn	ttcctncaca	aatctaaacc	ttgangtgat	ttgaaggaac	cacctc	656
<210:	> 650					
<211:	> 645					
<212:	> DNA					
<213	> Homo Sapi	ens				
<400	> 650					
gaacttcccn	acnncatttt	tatttaaaac	ncaaacaatt	nttncncttn	ctntangggc	60
aantggtnca	aatantgcgn	aacncaaaac	tttnactaat	acaattgctt	taaatntaaa	120
ncaaanttat	tttttaaaaa	accaaaaaaa	taaaaaatnt	ttccaaangg	gacctgaaan	180
ctntaaccta	atcccaaaaa	caaaataatt	aaaaannccn	nggtnaancc	tnaacntnct	240
ncenetnett	tgnaaaaggg	ctatcanaca	acntncattc	ncctaaaaat	gnatnggtaa	300
aggtttttct	anacataaac	ttcattcatt	ttggcttntn	caaaancacc	ccaancincc	360
caaaactnaa	tgggenneet	ntggcttnct	ccctttccca	tntncccaac	aaggctactt	420
naattncaac	ncttnataac	ccccttacaa	caccattncc	ttagnaccaa	cataacaggt	480
	ncccnataaa					540
	ccctccccc					600
	tecneccaaa					645
				55		
<210	> 651					
<211	> 780					
<212	> DNA					
	> Homo Sapi	ens				
<400	> 651					
	ccaaagtgct	gagattacag	gcctgagcca	ctgcaccttg	ccttccttac	60
	cgacatttt					120
	gtatgcagaa					180
	cttgctgaag					240
	tgatecteca					300

aagctccaga	aactaacatt	gacaaaacac	caaagaaagc	tcaagtttcc	aagtctctta	360
aggagcgatt	aggcatgtca	gctgatccag	ataatgagga	tgcaacagat	aaagttaata	420
aagttggtga	gatccatgtg	aagacattag	aagaaattct	tcttgaaaga	gccagtcaga	480
aacgtggaga	attgcaaact	aaactcaaga	cagaaggacc	ttcaaaaact	gatgattcta	540
cttcaggagc	aagaagctcc	tccactatcc	gtatcaaaac	cttctctgag	gtcctggctg	600
aaaaaaaca	tengeageag	ggaactgaag	agacaaaaaa	gccnaaagga	tacaacttgc	660
atcaagctaa	agattgatag	tgaaattaaa	aaaaacagta	attttngcca	cccattgttg	720
ccngcagaag	acaatcanaa	gaacctgcag	gtaaaacaaa	ntctatgcag	ggaggtgccc	780
<210:	652					
<211:						
<212						
	Homo Sapie	ens				
	-					
<400						
			acaaacaatt			60
			nttnactaat			120
			taaaaaatnt			180
			naaaaatcca			240
			acnttcattc			300
			tttgcttntg			360
			tnectttece			420
			acancatttc	cttaggancc	aacatnacgg	480
tgggtcaaat	cccctataaa	aaacaaaact	ggccncct			518
<210	> 653					
	> 490					
	> DNA					
	> Homo Sapi	ens				
	> 653					
			acattagaag			60
			ctcaagacag			120
			actatccgta			180
			gcagagagac			240
			attaaaaaaa			300
			gcaggtaaaa			360
			ggagaaggca			420
		egreceaaca	cnaggccact	ccaagggcaa	ggeggetget	480 490
gcnaatcccc						490
<210	> 654					
<211	> 359					
<212	> DNA					
<213	> Homo Sapi	ens				
	454					
	> 654	222000002200	2255755666	attaaantan	aaaaaatnan	
					gggcaatngn taaaccaaat	60 120
					aatcenttag	180
					teeneeneen	240
					ntaaagnttt	300
			nttccaaanc			359

<210> 655

780

840

<211> 611			
<212> DNA			
<213> Homo Sapiens			
<400> 655			
tgaaaaaaa catcggcagc aggaa	ncada aadachaaaa a	acasasaaa stact	acttq 60
catcangcta angattgata gtgaa			_
cancagagga caatcanagg ageet			5 5
caagacgctg gaagaaatta aactg			
cagcaccage teceegtete aacac			
cnccnaaaga ncagggatga angaa			
tcagancatt attataactg aagct			
cactaaaatt ccagtcaaga gatgt			_
nnqaqaqqqa aaaatcagtc ttgac			
aantggcaga gaaaccagtg Ctcac			
ggetteceae a	-55 -555		611
350000000			
<210> 656			
<211> 634			
<212> DNA			
<213> Homo Sapiens			
<400> 656			
ccnacatcag ttttatttaa aacad			
tcaaataatg cggaacacna aacat			
tatttttaa aaaancnaaa naata			
ctgattccaa aaacnaaata antti			
ctttggaaaa gggntatcat acaa			
tctatacata aacttcagtc attt			
gaatgggcag teetgtgget ttett			
caactettga nnancegett acaa			
aatttcccta tnaaaaacaa aact			
teetteetet teecetgant atat		aanaatanta tttco	
cttattcctt cccnaatcta aacc	tgaag tgat		634
<210> 657			
<211> 958			
<212> DNA			
<213> Homo Sapiens			
<400> 657			
gaaagaaaag catcatgtaa aaat			
tgaaattcta ccctctaaga aaat			
aggcagtgct catcaagata ctgc			
tagacatact gtgccttgta tgcc			
gcaagagctg gagaagagta tgaa			
tgaagaattc aagaaacttg ctct			
ccaggtcacc aaatcagttg actt			
taagaaccag gaggaatata agga			
atctcctgcc cgagtgacta aggg			
aaagaaaaga acatttgatg aaac			
agacttccat aaacgaaccc ctaa	vayata tidittyayg a	aycaayaagg atga	tattaa 660

cctgttaccc tccaaatctt ctgtgaccaa gatttgcaga gacccacagg actcctgtac

tgcaaacaan acaccgtgca cgggctgtga cctgcaaaaa gtacagcaga gctggaggct

gaggagetne gagaaattge aaccantaca anttecaaag caegtngaac ettgatteee

agaataactt acggagccct	gangggtggg antnggcttt	cccaaccttg gatttgggaa	cccaagaaaa tttgggaaan	ccaccngtga gaatncaagg	aancaancca gaggngag	900 958
.27.0						
	> 658 > 816					
	> BI6 > DNA					
<213	> Homo Sapie	ens				
	> 658					
gggagggaaa	gacaaaacgt	atttattcca	ggccaggtct	taaaatgcac	actgcacggt	60
tccctgttgt	tatcagcacc	agtaaggaaa	gaacgtgcct	taacggcagc	cccacccaga	120
gcctgctgcg	tggctgctgt	gaggctcccc	atgaatccac	gcagtcttct	tecteacted	180
tgcagttggt	gaggttttct	accctcacag	caaagggatc	cttaactata	aattcacggt	240
atgcagagaa	gaggacagaa	tctgatttac	tgattgttcc	tcatttaaac	catgacttaa	300
tctctatctt	aggatttaac	tatctttatt	ttctggttaa	aatttttaaa	aaaagtgggg	360
agagggtgag	agtcgtaagg	ggcaatagca	atagagatta	cactgtgctg	acacagagac	420
taaattctag	tcagagtgaa	gaccatataa	aaggeegget	gatggtttaa	aggaagtaac	480
tacatggagt	ctaatcgaga	cattcatgan	ttacatctca	ttattagcct	tagtaatgta	540
agaaaacaat	tctcaacaaa	actgggagtc	cacagttgtc	aagtatgctt	tctcangcac	600
gggtaggtaa	aagtctggan	aaatgggttc	tetecatgee	caatgacaaa	gcaagacggt	660
cctaggtttg	aagttaaaaa	caggtcccaa	ttgcccgggc	ggtatccgcc	agctcacagc	720
tgaatttaan	catggaaatc	caatggaaaa	attggganat	acnggcacat	tcanaaggct	780
ggtcctttga	cttatctcca	naacccgggt	actggc			816
<210:	> 659					
<211:						
	> DNA					
<213:	> Homo Sapie	ens				
-400-	> 659					
		ataaaaaa				
cyayaaaayt ctcacaaactt	ggtataaata	ctgggaaaaa	cctgctcttc	tgcgttaagt	gggagacaat	60
cttggatgat	gaagggggata	attcctatga	rgceeeeteg	gatttcatca	atttttcatc	120
ggacgac	ttagtagaca	ctcaaaacat	agattcatgg	tttgaggaga	aggccaattt	180
ggagaacaag	aatottoogo	agaatggaac aagctattgt	tggagggett	tttcagggca	aaactccttt	240
ctacaaagac	gragaaaag	aaaatcttgt	Cacacette	aaaccagttg	acaacactta	300
ttccctggaa	attaaaacaa	ccatatcaag	asasactoca	acceegteaa	atgettgtte	360
tettaggett	tetectcaca	aggatttgga	agagaaagaa	geccageete	agagaagate	420
agccaagaga	tataccacte	ctgtaatcat	Castasset	ctacceteta	taaaaatgaa	480
agtttctaac	ancacaaaga	agccagagga	agaagggaagt	ccacccccca	agaaaatgaa	540
aaagaatgca	tettecccaa	gagaaagcca	agaaggcagc	tactctccat	acactgetga	600
ctgcanagca	gaagtttcna	aaangtactg	angaggaga	aatatagaaa	cgcatgccac	660
aaatgc	JJ		angagodang	aacceggaga	agagtatgaa	720 726
						720
	> 660					
	> 824					
	> DNA					
<213:	> Homo Sapie	ens				
<400	> 660					
		ttctggttaa	aatttttaaa	aaaagtgggg	agagggtgag	60
agtcgtaagg	ggcaatagca	atagagatta	cactgtgctg	acacagagac	taaattotag	120
tcagagtgaa	nacccatata	aaaggccggc	tgatggttta	aaggaagtaa	ctacatorag	180
tctaatcgag	acattcatga	gttacatctc	attattagcc	ttagtaatqt	aaqaaaacaa	240

tteteaacaa aactggagte cacagttgte aagtatgett teteaggeac gggtaggtaa

```
aagtotggan aaatgggtto totocatgoo caatgacaaa gcaagacggt cotaggtttq
                                                                      360
aggttaagan caggtcccat tgccgggegg tatccgcagc tcacagctga ntttagcagt
                                                                      420
ggaatcgagt ggagaatttg gggagataca ggcncagtca gaggctggtc acttgacttt
                                                                      480
atotocagac cotggtactt gogtattgga tttgccttat gcaccagttc tctccgtagc
                                                                      540
ctggccanct cctcttttt ctgctcttcc tcctgtagtc tggcctcctc caactgctgg
                                                                      600
getttetggg ettetacete agecattete ttetecaget eeetgeeget etttggetet
                                                                      660
ctctcagtag cccactgaaa angtccctga acnaaaaaaa ccanaaanng gccctcacaa
                                                                      720
ctgatttent ctctttcttg gggaaccaag ggcccctgaa aaaanaaacg gtgtttggaa
                                                                      780
caaacentga aacaagenge etecttetge etgteccaat teet
                                                                      824
      <210> 661
      <211> 399
      <212> DNA
      <213> Homo Sapiens
      <400> 661
ggtttgnagg gaaaaanaaa acttttttt cccagnccag ttcttaaant nccccnngen
                                                                       60
nggtcccctn tntttttcnc ccccattaag gaaaaaactt gcntnancgg nagcccccc
                                                                      120
caaaacctnc tgcttggctg ctttaaggnc cccataannc cccccatnnt cctccccac
                                                                      180
tggtncattg gtnaggtttc ctccccccn ccaaaggnnt ccttacntat aaatcccngg
                                                                      240
tttncaaaaa aaaananaaa accaattten gatnnteece ettnaancea gnacttaate
                                                                      300
cctntctnag gattnaacaa ccttttttn cgggttaaaa tttttaaaaa aattngggaa
                                                                      360
anggttaaat ccttaggggg aatnccnata aaaattacc
                                                                      399
     <210> 662
      <211> 826
     <212> DNA
      <213> Homo Sapiens
      <400> 662
gtcaaatgct tgttcttccc tggaagttga ggcagccata tcaagaaaaa ctccagccca
                                                                       60
gcctcagaga agatctctta ggctttctgc tcagaaggat ttggaacaga aagaaaagca
                                                                      120
tcatgtaaaa atgaaagcca agagatgtgc cactcctgta atcatcgatg aaattctacc
                                                                      180
ctctaagaaa atgaaagttt ctaacaacaa aaagaagcca gaggaagaag gcagtgctca
                                                                      240
tcaagatact gctgaaaaga atgcatcttc cccagagaaa gccaagggta gacatactgt
                                                                      300
gccttgtatg ccacctgcaa agcagaagtt tctaaaaagt actgaggagc aagagctgga
                                                                      360
gaagagtatg aaaatgcagc aagaggtggt ggagatgcgg aaaaagaatg aagaattcaa
                                                                      420
gaaacttgct ctggctggaa tagggcaacc tgtgaagaaa tcagtgagcc aggtcaccaa
                                                                      480
atcagttgac ttccacttcc gcacagatga gcgaatcnaa caacatccta ngaaccagga
                                                                      540
ggaatataag ggaagtgaac tttacatctg aactacgaaa gcatccttca tctcctgccc
                                                                      600
gaantgacta aggggatgtt ccattgttaa gcctttcaac ctgtcccngg gaaagaanag
                                                                      660
aacntttgat gaaacagttt ctacatatgt geeeettgee engeaagttg aagaetteen
                                                                      720
taancgaacc ctnactgatt tottttgang aaccagaang gntgattttn ccctgtttcc
                                                                      780
ctccaatctt ctgtgaacaa gatttggccq aanacccccq aacccc
                                                                      826
      <210> 663
      <211> 770
      <212> DNA
      <213> Homo Sapiens
      <400> 663
gggaaagaca aaacgtattt attccaggcc aggtcttaaa atgcacactg cacggttccc
tgttgttatc agcaccagta aggaaagaac gtgccttaac ggcagcccca cccanagcct
                                                                      120
gctgcgtggc tgctgtgagg ctccccatga atccacgcag tcttcttcct cactggtgca
                                                                      180
gttggtgagg ttttctaccc tcacagcaaa gggatcctta actataaatt cacggtatgc
                                                                      240
```

```
anagaanagg acagaatctg atttactgat tgttcctcat ttaaaccatg acttaatctc
                                                                      300
tatettagga tttaactate tttatttet ggttaaaatt tttaaaaaaa gtggggagag
                                                                      360
ggtgagagtc gtaaggggca atagcaatag agattacact gtgctgacac agagactaaa
                                                                      420
ttctagtcag agtgaagacc catataaaag gccggctgat ggtttaaagg aagtaactac
                                                                      480
atggagtcta atcgagacat tcatgagttn catctcatta ttagccttag taatgtaaga
                                                                      540
aaacnattct caacaaaact ggagtccaca gttgtcaant ntgctttctc aggcacgggt
aggtnaaaat ctgganaaat gggttctctc catgcccaat gacaancaan anggtcctag
                                                                      660
gtttgaagtt aaaaacangt cccattgccg gcggtatccg cagctcacag ctgaatttac
                                                                      720
engtggaate aantggaaaa tttgggaaaa taenggeeca atcaaaaqqt
                                                                      770
      <210> 664
      <211> 593
      <212> DNA
      <213> Homo Sapiens
      <400> 664
gaaganctga gcagcacagc actggtgaag aagagctgcc tggcggagct cetceggett
                                                                       60
tacaccaaaa gcagcagctc tgatgaggag tacatttata tgaacaaagt gaccatcaac
                                                                      120
aagcaacaga atgcagagtc tcaaggcaaa gcgcctgagg agcagggcct gctacccaat
                                                                      180
ggggagccca gccagcactc ctcggcccct cagaagagcc ttccagacct cccgccaccc
                                                                      240
aagatgattc cagaacggaa acagettgcc atcccaaaga cggagtctcc agagggctac
                                                                      300
tatgaagagg ctgagccata tgacacatcc ctcaatgagg acggagaggc tgtgagcagc
                                                                      360
tectacgagt cetacgatga anaggaegge ageaagggea agteggeece ttaccantgg
                                                                      420
nectogoogg aggooggcat cganctgatg cgtgacgccc gentetgege ettectgtgg
                                                                      480
cgcaagaaag tggctgggac agtgggccaa gcagctctgt gtcatcnagg acaacagget
                                                                      540
tetgtgetne naateeteea aggaceeeng ceeteagetg gaegtgaace tac
                                                                      593
     <210> 665
     <211> 1024
     <212> DNA
      <213> Homo Sapiens
      <400> 665
aagagattga agcaaatgaa tggaagaaga aatacgaaga gacccggcaa gaagttttgg
                                                                       60
agatgaggaa aattgtagct gaatatgaaa agactattgc tcaaatgatt gaagatgaac
                                                                      120
aaaggacaag tatgacctct cagaagagct tccagcaact gaccatggag aaggaacagg
                                                                      180
ccctggctga ccttaactct gtggaaaggt ccctttctga tctcttcagg agatatgaga
                                                                      240
acctgaaagg tgttctggaa gggttcaaga agaatgaaga agccttgaag aaatgtgctc
                                                                      300
aggattactt agccagagtt aaacaagagg agcagcgata ccaggccctg aaaatccacg
                                                                      360
cagaagagaa actggacaaa gccaatgaag agattgctca ggttcgaaca aaagcaaagg
                                                                      420
ctgagagtgc agctctccat gctggactcc gcaaagagca gatgaaggtg gagtccctgg
                                                                      480
aaagggccct gcagcagaag aaccaagaaa ttgaaggaac tgacaaaaaat ctgtgatgag
                                                                      540
ctgattgcaa agetgggaaa gactgactga gacactcccc ctgttagetc aacagatetg
                                                                      600
cattiggctg cttctcttgt gaccacaatt atcttgcctt atccaggaat aattgcccct
                                                                      660
ttgcaganga aaaaaatata cttaanaaaa gcacatgcct actgctgcct gtcccgcttt
                                                                      720
gctgccaatg caacagccct ggaagaaaac cctatanggn tgcatagtct aaaaagggag
                                                                      780
ttgtngactn gacagtgctg ggagcctnct agtttccccc cnatgaaagg ttcccttagg
                                                                      840
ctgctgagtt tggggtttgt gatttaacct taagtttgtt ttaaagtcca ncttaacttt
                                                                      900
cccaaattgt gtttaaaatt tgtaacnccc cctttggggt cttcccaaca accggtccga
                                                                      960
tttttttggn gatcggttta accettttaa ttttttagta necagtgggg tttaatttag
                                                                     1020
qqqa
                                                                     1024
```

<210> 666

<211> 734

<212> DNA

<213> Homo Sapiens

<400> 666 gagacaagat cttgctgtca cccaggatgg agtgcagtgg catgatcatg gctcactgca 60 geettgacet eeeaggetee caceteagee teecaagtag etgggaceae aggeaegtge 120 caccatgccc agetaatttt tattttggta nanacaaggt ttcaccatgt tgcctaggta 180 ggtttcaaac teetggacte aagtgateet eetgeetegg eettecacag tgttgggatt 240 acaggaataa gccactgtgc coggcccttt ttctcttctg taacagantt tattactgcc 300 tagetageag gttatttgge ceteacatgt gttgaggeaa actetatact atattettae 360 tetecanagt tecaaaatee titattitta aanaaaaata aacaaacata etteattetg 420 cccagtatat tetettgate tgtacaaget acgattttaa ttetetttgg gagaggaage 480 atetgttaag ttegaatggg ggatatttee teataaeggt catggetgan aageeaggae 540 aattatcact taacgaaggt cetttggtgc tecetgtgca teagetteat teactggggt 600 caggitetta aggggtetet tecaccaatg tgetagggaa gggetgeeat cacctetgtt 660 taacacatag ctactttctt aaaccnataa gcttaaaaaa gangactatg gaattaccaa 720 tqqaaqqcnt ataa 734 <210> 667 <211> 592 <212> DNA <213> Homo Sapiens <400> 667 gttatgaana cctttccaaa ttcatttgta tttctgttaa atttattttt tacttttaga 60 gtggctatca ttataatgta atttaaaatt atatttgtaa aagtgactat tggagtgagt 120 acgaattttg tttatanatc tatgataaat gcattctccc tntaggaggt agaanagtat 180 acagetgtnt ataataaget tegetatgaa catacattte teaagteaga atttgaacae 240 cagaaggaag agtatgcacg tnttttagat gaangaaacn ataaactatg aatcagagat 300 ngcaanactg gaggaagatn aagaagaact acgtanccag ctgcttaatg tngatctcac 360 anaagacage aaacgagtgg aacaacttge tegagaaaaa gtetatttgt gtecaaaatt 420 aagangttta gaggctgaag taccngaatt aaaggctgaa naggagaatt ctgangctca 480 ggtggaaaat gcccaaanaa tacacgtgcg gcagttggct gagatgcacg ctacagtcag 540 atccctggag gctgacaanc aatcanctaa tttacgggca naacgcttgg aa 592 <210> 668 <211> 373 <212> DNA <213> Homo Sapiens <400> 668 aaaaaaaaat taagctcttt aattatgtgc acacagattt tagaaaaggt agccttttgt 60 atatanatac etttacatte tttaggntga nttttaaatt gtcatetttt ttcaactaca 120 gtttttgtnt atagtaaacc anaanatgtg tntggaccct gttatggnca agcateteaa 180 agatgaagan agaattaatg atagttatat ttcactcaaa atgccaaaaa aaaaaattca 240 acaaagtaaa aattttaaaa cttgactcta actagttcct ttttgtttta cattctcaaa 300 ccattgtnaa atattctaaa tatctctgaa aatttctctt ttaatgcttc acttgtntaa 360 tcttaaaatc ctg 373 <210> 669 <211> 661 <212> DNA

<213> Homo Sapiens

<400> 669

cacacctggt ggtcctgaag acagcccagg acccagggat ctcccccagc cagagtctgt

60

```
gtgcggaaag ttccagaggc ctcagtgcag gctccctgtc ggagagtgca gttgggccg
tggaggcatg ctgcctggtc atcctggctg cagagagcaa ggtcgctgcg gaggagcttt
                                                                    180
getgtetget aggecaggte ttecaggttg tttacacgga gtecaccate gaetttetgg
                                                                    240
acagagegat atttgatggg geetetacce egacecacca cetgtecetg cacagegatg
                                                                    300
actottotac aaaagtggac attaaggaga cotacgaggt ggaagccagc actttotget
                                                                    360
tecetgaate tgtggatgtg ggtggtgeat caccecacag caagaceate agtgagageg
                                                                    420
agetgagege cagegecact gagetgetge aggaetacat getgaegetg egeaceaage
                                                                    480
tgtcatcaca ggagatccag cagtttgcag cactgctgca cgagtaccgc aatggggcct
                                                                    540
ctatecacga nttetgeate aacetgegge agetetacgg ggacageege aagtteetge
                                                                    600
tgcttggtct gaagcccttc atccctgaaa angacagcca gcacttcnag aacttcctgg
                                                                    660
                                                                    661
     <210> 670
     <211> 401
     <212> DNA
     <213> Homo Sapiens
     <400> 670
aaattattca cattgcagta aacttctttt taaggtctct gaaagttaca ataggaacat
                                                                     60
catgtgcaaa actgacagcc gtccaagggc ccagccgaca ggactggctc tccctgcccg
                                                                    120
cteggeeggg eceteceega geggggaeae actgeaggge ttggetgaae eetggtggae
                                                                    180
aaggcaaana nccttccacc cogcactgag getegtgtee eteggcaget ceetgeteet
                                                                    240
teacagtaaa ngacetggge egeeegggge eatetgeace gggegeetet eeetggeeac
                                                                    300
caccaagggc tgacacgcag gtctgggcag ctccttctgg gaaggcctat gacgactgcg
                                                                    360
ccgaaggtgt gggtgccccc ccatccactg tccatcatgc c
                                                                    401
     <210> 671
     <211> 1347
     <212> DNA
     <213> Homo Sapiens
     <400> 671
aagatcagcg atatcacgcg tcccccggag catcgcgtgc aggagccatg gcgcgggagc
                                                                     60
tataccacga agagttegee egggegggea ageaggeggg getgeaggte tggaggattg
                                                                    120
agaagetgga getggtgeee gtgeeecaga gegeteaegg egaettetae gteggggatq
                                                                    180
cetacetggt getgeacacg gecaagacga geegaggett cacetaccae etgeacttet
                                                                    240
ggctcggaaa ggagtgttcc caggatgaaa gcacagctgc tgccatcttc actgttcaga
                                                                    300
tggatgacta tttgggtggc aagccagtgc agaatagaga acttcaagga tatgagtcta
                                                                    360
atgactttgt tagctatttc aaaggeggtc tgaaatacaa ggctggaggc gtggcatctg
                                                                    420
gattaaatca tgttettaeg aacgaeetga cageeaagan geteetaeat gtgaagggte
                                                                    480
gtanagtggt gagagccaca gaattcccct tagctgggac agtttcaaca agggtgactg
                                                                    540
cttcatcatt gaccttggca ccgaaattta tcanttggtg tggttcctcn tqcaacaaat
                                                                    600
660
ggtctgaact aattgtcgtg gaanaaggaa gtgaaccctc agaacttata aaggtcttag
                                                                    720
gggaaaagcc agagcttcca gatggaggtg atgatgatga cattatanca gacataagta
                                                                    780
acaggaaaat ggctaaacta tacatggttt cagatgcaag tggctccatg agagtgactg
                                                                    840
tggtggcana agaaaacccc ttctcantgg caatgctgct gtctgaagaa tgctttattt
                                                                    900
tggaccacgg ggctgccaaa caaattttcg tatggaaagg taaagatgct aatccccaag
                                                                    960
agaggaagge tgcaatgaag acagetgaag aatttetaca gcaaatgaat tattecaaga
                                                                  1020
atacccaaat tcaagttctt ccagaaggag gtgaaacacc aatcttcaaa cagtttttta
                                                                   1080
aggactggag agatnaacga tcagagtgat ggcttcggga aagtttatgt cacagagaaa
                                                                   1140
gtggctcaan tnnaacnaat tccctttgat gcctcnnaat tacncagttc tccgcagatg
                                                                   1200
gcagcccagc acaatatggt ggatgatggt tctggccaag tggaaatttg gcgtgtncaa
                                                                   1260
aacaatggta ggatccaagt tgaccnnaac teetatggtg acteccatgg tggtgactge
                                                                   1320
tacttcatac tctacaccta tccctga
                                                                   1347
```

<210> 672 <211> 3441 <212> DNA <213> Homo Sapiens

<400> 672

atgtttctaa cattgaactc taaggaagct ggtgaacaaa cacgccatat gtatgcagaa 60 cacttaacag aattatgeta tgttgtetgt ttttgtttgt atttettgte ettgetgaag 120 attgacttga aatcttaaac taagttctcc ctctttatag geggtgacag tgatectcca 180 ttaaagcgta gcctggcaca gaggctaggg aagaaagttg aagctccaga aactaacatt 240 gacaaaacac caagaaaagc tcaagtttcc aagtctctta agggagcgat taggcatgtc 300 agctgatcca gataatgagg atgcaacaga taaagttaat aaagttggtg agatccatgt 360 gaagacatta gaagaaatte ttettgaaag agecagteag aaacgtggag aattgcaaac 420 taaactcaag acagaaggac cttcaaaaac tgatgattct acttcaggag caagaagctc 480 ctccactatc cgtatcaaaa ccttctctga ggtcctggct gaaaaaaaac atcggcagca 540 ggaagcagag agacaaaaaa gcaaaaagga tacaacttgc atcaagctaa agattgatag 600 tgaaattaaa aaaacagtag ttttgccacc cattgttgcc agcagaggac aatcagagga 660 gcctgcaggt aaaacaaagt ctatgcaggg aggtgcacat caagacgctg gaagaaatta 720 aactggagaa ggcactgagg gtgcagcaga gctctgagag cagcaccagc tccccqtctc 780 aacacgagge cactecaagg geaaggegge tgetgegaat ceccaaaaga acagggatga 840 aagaagagaa gaaccttcag gaaggaaatg aatttgattc tcagagcatt attataactg 900 aagctaaaga agcttcaggt gagaccacag gagttgacat cactaaaatt ccagtcaaga 960 gatgtgagac catgagagag aagcacatgc acaaaacaac aggagaggga aaaatcagtc 1020 ttgacacete tteggggaga tgtageetet tgeaatacee aagtggeaga gaaaceagtg 1080 ctcactgctg tgccaggaat cacacggcac ctgaccaagc ggcttcccac aaagtcatcc 1140 cagaaggtgg aggtagaaac ctcagggatt ggagactcat tattgaatgt gaaatgtgca 1200 gcacagacct tggaaaaaag gggtaaagct aaacccaaag tgaacgtgaa gccatctgtg 1260 gttaaagttg tgtcatcccc caaattggcc ccaaaacgta aggcagtgga gatgcacgct 1320 getgtcattg cegetgtgaa ccactcaget ccagcagtgt cctacaggaa cccccagca 1380 aaaaggcagc tgtggctgtt gtcccgcttg tctctgagga caaatcagtc actgtgcctq 1440 aagcagaaaa tootagagac agtottgtgo tgootocaac coagtootot toagattoot 1500 cacccegga ggtgtctggc cettecteat cecaaatgag catgaaaact cgccgactca 1560 gctctgcctc aacaggaaag cccccactct ctgtggagga tgattttgag aaactaatat 1620 gggagatttc aggaggcaaa ttggaagctg agattgacct ggatcctggg aaagatgaag atgacettet gettgageta teagaaatga ttgatagetg aagggtggta gtgaggacae 1740 tttaaaaaaaa aatcgccaaa aaactggact tagtttcatc tattgtaaca tttacctgag 1800 atgatcattt ctttagtcta gaatttgccc caaatcagaa gtatacctct gaattatctg 1860 tatgtgtcct ggattccttg gggtcagatt tttaaagtta ctttataacc attttgtcca tttgatgcca ttgtttatca tcttttgaga aaaaagttct gtcataccct tctctccaca 1980 aaaaagagac tgagagggag atcaagtgaa agggtgcaag cgaacttagt gactccttga 2040 ggtgtttgtc agttttggct tttttcttct ttgttgtatt ctttatgtat tgtcttgatq tacttaatat tacctgagtt tgaaatggat gaagacagct gctaccatta aggaccaaat 2160 tttatgctac cactaaacaa aaatacccac tcagtctgtg ttaaattgta tgtcttttta 2220 aaggtattta aagattcaac taagctttaa agagggctga gcagctcagg aagcctgtaa 2280 tgtgggcata actetttgga cetgatettg atgettetge tgetetgtta geetetgaag 2340 agcaatatct aatttattat tactgtaatt ttttaaaaagg ctttaaaagtg cctcaggggt 2400 cccctgaaac taattttcta tttctgggat tccctggatt cattatatga gatggtgaca 2460 tgattagagg aattetttt tagtatgaaa attgteeett ttettettea gtaettgeet ccttgctggc attgaattaa cacagggaca aaatttggtt aatttttat ttctaactct 2580 cccaacaaac ccctgttgcc cagtatttgt ttggtggcct ttaaccacct gagggaaaaa 2640 atgagettat teaagetgee aatatttate tatgggetgt ageagtacae tgaattgtae 2700 2760 tetgaattga gttttetttt ettgatgttg gttteettea tateacetea aggtttagat 2820 ttgtgaagga ataagcatga tggaaataat agtcttgaaa ggagatatgt tgtatataat 2880 caggaggaag aggaaggaag gacttaccca ttttgatatt ttgctgtagg tggccagttt

```
tgtttctcat agggaaatnt gacccacctg tcatgttggc tccctaagga actgctgttg
taagcggctc atcaagagtt gaacttcacg tagccttgtt gggaatatgg aaaaggaaga
                                                                    3060
aagccacagg actgcccatt cagttttggg aagattggga tgattttgca caagcaaaaa
                                                                    3120
tgactgaagt ttatgtatag acacacettt accaatecat nttcagetga etgaatgttg
                                                                    3180
tatgatagee ettetecaaa geagaggtag aatgtteagg ttteaceatg gattttetae
                                                                    3240
ttatttegtt tttggaatca cettacagat tecaggteee ttttgtatat attetttatt
                                                                    3300
cttttgcttt tttaaaaaat aattttgttt catatttaaa gcacttgtat tagtcaatgt
                                                                    3360
ttcgtgttcc gcattatttg aaccatttgc ccttacagaa agagaaatac ttgtttgtgt
                                                                    3420
tttaaataaa actgatgtag g
                                                                    3441
      <210> 673
      <211> 1016
      <212> DNA
      <213> Homo Sapiens
      <400> 673
gtcaaatgct tgttcttccc tggaagttga ggcagccata tcaagaaaaa ctccagccca
                                                                      60
gcctcagaga agatctctta ggctttctgc tcagaaggat ttggaacaga aagaaaagca
                                                                     120
tcatgtaaaa atgaaagcca agagatgtgc cactcctgta atcatcgatg aaattctacc
                                                                     180
ctctaaqaaa atgaaagttt ctaacaacaa aaagaagcca gaggaagaag gcagtgctca
                                                                     240
tcaagatact gctgaaaaga atgcatcttc cccagagaaa gccaagggta gacatactgt
                                                                    300
gccttgtatg ccacctgcaa agcagaagtt tctaaaaagt actgaggagc aagagctgga
                                                                    360
gaagagtatg aaaatgcagc aagaggtggt ggagatgcgg aaaaagaatg aagaattcaa
                                                                    420
gaaacttget etggetggaa tagggcaace tgtgaagaaa teagtgagee aggtcaecaa
                                                                    480
atcagttgac ttccacttcc gcacagatga gcgaatcaaa caacatccta agaaccagga
                                                                    540
ggaatataag gaagtgaact ttacatctga actacgaaag catcettcat etcetgeeeg
                                                                    600
agtgactaag ggatgtacca ttgttaagcc tttcaacctg tcccaaggaa agaaaagaac
                                                                    660
atttgatgaa acagtttcta catatgtgcc nccttgcaca gcaagttgaa gacttccata
                                                                    720
aacgaacccc taacagatat catttgagga gcaagaagga tgatattaac ctgttaccct
                                                                    780
840
accgtgcacg ggctgtgacc tgcaaaagtt acagcagagc tggaggctga ggagctcgag
                                                                    900
aaattgcaac aatacaaatt caaagcacgt gaacttgatc ccagaatact tgaaggtggg
                                                                    960
cocatettge ccaagaaace acetgtgaaa ccaegeegag ceetatgeet egtgee
                                                                   1016
     <210> 674
     <211> 1135
      <212> DNA
     <213> Homo Sapiens
      <400> 674
aggaattggg acaggcagaa ggaggcngct tgtttcangg tttgttccaa acaccgtttn
                                                                     60
ttttttcagg ggcccttggt tccccaagaa agagangaaa tcagttgtga gggccnnttt
                                                                    120
ntggtttttt tngttcaggg acnttttcag tgggctactg agagagagcc aaagagcggc
                                                                    180
agggagctgg agaagagaat ggctgaggta gaagcccaga aagcccagca gttggaggag
                                                                    240
gccagactac aggaggaaga gcagaaaaaa gaggagntgg ccaggctacg gagagaactg
                                                                    300
gtgcataagg caaatccaat acgcaagtac cagggtctgg agataaagtc aagtgaccag
                                                                    360
cetetgactg ngcetgtate teeccaaatt etceactega ttecactget taaatteage
                                                                    420
tgtgagetge ggatacegee eggcaatggg acetgttttt aacttcaaac etaggacegt
                                                                    480
cttgctttgt cattgggcat ggagagaacc catttntcca gacttttacc tacccgtgcc
                                                                    540
tgagaaagca tacttgacaa ctgtggactc cagttttgtt gagaattgtt ttcttacatt
                                                                    600
actaaggeta ataatgagat gtaactcatg aatgtetega ttagacteea tgtagttaet
                                                                    660
tcctttaaac catcagccgg ccttttatat gggtcttcac tctgactaga atttagtctc
                                                                    720
tgtgtcagca cagtgtaatc tctattgcta ttgcccctta cgactctcac cctctcccca
                                                                    780
ctttttttaa aaattttaac cagaaaataa agatagttaa atcctaagat agagattaag
                                                                    840
teatggttta aatgaggaac aatcagtaaa teagattetg teetettete tgeataeegt
                                                                    900
```

```
gaatttatag ttaaggatcc ctttgctgtg agggtagaaa acctcaccaa ctgcaccagt
                                                                      960
gaggaagaag actgcgtgga ttcatgggga gcctcacagc agccacgcag caggctctqq
                                                                     1020
gtggggctgc cgttaaggca cgttctttcc ttactggtgc tgataacaac agggaaccgt
                                                                     1080
gcagtgtgca ttttaagacc tggcctggaa taaatacgtt ttgtctttcc ctccc
                                                                     1135
      <210> 675
      <211> 1067
      <212> DNA
      <213> Homo Sapiens
      <400> 675
attttaaaga aacttcacag agctgcttca gtcggggatt tgaagaagct gaaggaatac
                                                                       60
cttcagatca agaaatatga tgtaaatatg caggacaaaa aatacagaac acctttgcac
                                                                      120
ctagcctgtg ctaatggaca tacagatgtt gtacttttcc taattgagca acaatgcaaa
                                                                      180
ataaatgtcc gggatagtga aaacaaatcc ccattgatta aggcagtaca gtgtcaaaat
                                                                      240
gaggattgtg cotactattc ttctaaactt tggtgcagac ccagatctga gggatattcg
                                                                      300
ttataatact gttcttcact atgctgtttg tggtcaaagt ttgtcattag ttgaaaaact
                                                                      360
gettgaatac gaagetgate ttgaagegaa aaataaggat gggtatacte cactattagt
                                                                      420
tgccgttatt aacaataatc caaaaatggt aaaatttctt ctggagaaag gggctgatgt
                                                                      480
gaatgcttca gataattatc aaagaacagc ccttattctt gctgtcagtg gtgaaccacc
                                                                      540
atgittagta aagettette ticageaagg tgitggaatta tgitaegaag giatigigga
                                                                      600
ttcacagctg aggaatatgt ttatttccat ggttttactg catagatacc cacaattcac
                                                                      660
tgcgagccat ggaaagaaga aacatgctaa atagacacct tattcttggc actacatgtg
                                                                      720
actaaaggaa gatatggaac ccatttctac aatttctttg ccgcttcctt gaattggaaa
                                                                      780
aatgtacttt gaaagaaccg gttaagtgaa ctatgataat atttttgctg actacccagt
                                                                      840
tgaagaaaaa gtttcgttaa ttggatggga ttttttttt tcacgttaga agaatqaatq
                                                                      900
aagaaatttt aaaagataaa cattatattg tgaaccatca gctgaaaaga taaatttgtg
                                                                     960
ttcaatatat aggagaaaaa atttgtgtca aaatgttgaa tggaataata atgagaaact
                                                                     1020
gtgttaggca tgtattaaaa catttaaata aaataaaaat acatttc
                                                                     1067
     <210> 676
      <211> 784
      <212> DNA
      <213> Homo Sapiens
      <400> 676
aaaagaatto tacaagattg tggaattcac aatctagtat tgatcaaaaa ttggcaaatc
                                                                       60
aaattaatga tettagacaa actgteattt ggatgggaga cagaeteatg agettagaac
                                                                      120
ategitteca gitacaatgi gactggaata egicagatti tigiattaca eeccaaatti
                                                                      180
ataatgagtc tgagcatcac tgggacatgg ttagacgcca tctacaggga agagaagata
                                                                      240
atctcacttt agacatttcc aaattaaaag aacaaatttt cgaagcatca aaagcccatt
                                                                      300
taaatttggt gccaggaact gaggcaattg caggagttgc tgatggcctc gcaaatctta
                                                                      360
accetgicae tigggitaag accattggaa giactacgat tataaatete atattaatee
                                                                      420
ttgtgtgcct gttttgtctg ttgttagtct gcaggtgtac ccaacagctc cgaagagaca
                                                                      480
gegaccateg agaacgggee atgatgacga tggeggtttt gtegaaaaga aaagggggaa
                                                                      540
atgtggggaa aagcaagaga gatcaaattg ttactgtgtc tgtgtagaaa gaagtagaca
                                                                      600
tgggagactc cattttgtta tgtgttaaga aaaattcttc tgccttgaga ttctgttaat
                                                                      660
ctatgacctt acccccaacc ccgtgctctc tgaaacgtgt gctgtgtcaa ctcagggttg
                                                                      720
aatggattaa gggcggtgca ggatgtgctt tgttaaacag atgcttgaag gcagcatgct
                                                                      780
cctt
                                                                      784
```

<210> 677

<211> 1362

<212> DNA

<213> Homo Sapiens

```
<400> 677
ggcacgagct gggcattaat gaggatcatt ctgagggtga tgaaaaatct gagaaggaaa
ctattatggc tcaccagccg actgatgtgg agtccacttt attgcaagtt gcaaggaaca
                                                                      120
agaatactgc catccgtgaa gaactcaacc agctgaaaaa tgaaaacaga atgttaaagg
                                                                      180
acaggttgaa tgcattgggc ttttccctag agcagaggtt agacaattct gaaaaactgt
                                                                      240
ttggctatca gtccctgagc ccagaaatca cccctggtaa ccagagcgat ggaggaggaa
                                                                      300
ctctgacttc ttcagtggaa ggctctgccc ctggctcagt ggaggatctc ttgagtcagg
                                                                      360
atgaaaatac actaatggac catcagcaca gtaactccat ggacaattta gacagtgagt
                                                                      420
gcagtgaggt ctaccagece ctcacatega gcgatgatgc gctggatgca cacatetete
                                                                      480
teteagagte ggaaggeate teteageata gagegeteee ggaaggggag cagegggaat
                                                                      540
qccaqtgaag tgtccgtggc tctgcctgac ttnacgcata caccagatgg nagagaacca
                                                                      600
acacagtaca agtgagggac tecaggeaac cetgeaagag etagetgatt tacageagat
                                                                      660
tacccaggaa ctgaatagtg aaaacgaaag gcttggagaa gagaaggtta ttctgatgga
                                                                      720
gtetttatgt cagcagageg ataagttgga acaetttagt egacagattg aataetteeg
                                                                      780
ctctcttcta gatgagcatc acatttctta tgtcatagat gaagatgtaa aaagtgggcg
                                                                      840
ctatatggma ttagagcaac gttacatgga cctcgctgag aatgcccgtt ttgaacggga
                                                                      900
gcagcttctt ggtgtccagc agcatttaag caatactttg aaaatggcag aacaagacaa
                                                                      960
taaggaaget caagaaatga taggggcact caaagaacge agtcaccata tggagcgaat
                                                                     1020
tattgagtct gagcagaaag gaaaagcagc cttggcagcc acgttagagg aatacaaagc
                                                                     1080
cacagtggcc agtgaccaga tagagatgaa tcgcctgaag gctcagctgg agaatgacaa
                                                                     1140
gcagaaagtg gcagagctgt attctatcca taactctgga gacacatctg atattcagga
                                                                     1200
ceteetggag agtgteagge tggacaaaga aaaagcagag actttggeta gtagettgca
                                                                     1260
ggaagatctg gctcataccc gacatgatgc caatcgatta caggatgcca ttgctaggta
                                                                     1320
gaggatgata ccgagcctcc aagaagagct agaacaaatt ga
                                                                     1362
     <210> 678
```

<211> 1771 <212> DNA

<213> Homo Sapiens

<400> 678

```
agccagegge agcaggetga geteccagge tgacatetgg geagggetga tgggeagett
                                                                      60
ctggccatct ggtgaccagg tgtgccgcaa gtwktwwkta tatgcacagc ccctttccta
                                                                      120
ataacccaca ttctaggtta cgtagacacg ttaaactcct attctagaac atcgtgcttg
                                                                      180
aatgcagacc ceteagecca caateggget ggetgggeet cetgtgagec eteattgcat
                                                                      240
coagtetgtg gggcagtgac cocgetteca etggtggetg gtetteetea tggtgetatg
caggtgccaa acacagttat attctcaaag gtacaggtct tgtctggaca ttgttcaaac
                                                                      360
caatagctac tgcgttaggc acacgggaga tccctattcc caaaaatagc tgttgagttc
                                                                     420
tgqcctgaga gcatctccag tgaccacctt taaataaggc tttggttcaa acagcatgga
                                                                     480
cccagcacct ggggagggtg ggcacagggg gcatggaccc agtacctggg gagggcgggc
                                                                     540
atggtggtag gagacaactc aaccactgag tettggaggt cetgeettgg eeaeggaggg
                                                                     600
cagtggctgc cctcacaaga agagtgaaga cactttcttt aactctgtcc taggagaatt
                                                                      660
atgtgttagt gactcagtga gtttaaatga cactgcctgg rctccctaaa gttgtttact
                                                                     720
tttstcctat ttrctgcktt awtccttgct ctcaccatgc taatgtacag atgttgttta
                                                                     780
gatttetatg ettattgaaa caatgtaact gtgggactaa cagaacagga gcgacettgt
                                                                      840
ccagcattgc tcgtaacaaa acaaaaatgt taactagaaa aactccttat gatgaagaaa
tetaaageca gagetgggae tecaaacece ttecagggtg gaagacaggt egetgagtee
                                                                      960
aggcaagggg cccccgtaac tgcttcccgc cagaaagccc agccgcgtga gtkcagcagc
                                                                    1020
agcaccccag ccctggcgtg gccgcaccac ggcctctaga tactcttcta gctcaggctg
                                                                    1080
aacacgcctg gattgtgtcg geegggacag ceeegtcagt gtggggcage tgacccacgt
                                                                    1140
ctgtgtgaac atgctcctcc aaactaggac ggtgaagggc ccagggcgct gggaactgcc
                                                                    1200
aggogotgac totoottotg ggttotcacc agcaccggaa cocaccccag ccaatagtca
                                                                    1260
ggaagtgccg cggccgagcc ttcatcaacc ctagtgagtt tcccacagaa ctgaatccct
                                                                    1320
tttcccaaat tcagctgtgc atgagccctt tttgtttggt gccctggagc actagtqtaq
                                                                    1380
ttcaatattc tcttcagaag gaaaactcca gcagccaccg gcctgcagga tgtgtgctga
                                                                    1440
```

720

```
gcccacatga cctgaatgga cgggtcatgt gggaggggcc ctggtgggag ctgtgggcca
                                                                    1500
caeggetgag ttettecaat aeggaageee egagetggag geteaeaege tgtggggeag
                                                                    1560
cccagagttg ctggaagctt tacaggggtg cgtagctaat ggcgtcggtg tcgctcggtc
                                                                    1620
gctgtggagg ggtaccccgc tattggggcg gctcctcccg gcatgctcag gtctcaaagt
                                                                    1680
acttgtagat cgcgtcacat acagtateae gttctgccag tegggtegtt cagtccgtac
                                                                    1740
catttcatta atgtccagtg tggatttgat g
                                                                    1771
      <210> 679
      <211> 1367
      <212> DNA
      <213> Homo Sapiens
      <400> 679
ctagtggatc caaagaattc ggcacgagga aacaagagcc ctgaaagatg aaatagatgt
tettaggget acctetgata aagcaaataa actggagtea acagttgaga tatategtea
                                                                     120
gaagetacaa gatetgaatg acettegeaa geaggtgaaa aetttacagg aaaccaacat
                                                                     180
gatgtatatg cataatacag tcagcttaga agaagaatta aaaaaagcaa atgcagcacg
                                                                     240
tacacaatta gaaacataca aaaggcaggt tcaagatctt catgttaaac tttcctccga
                                                                     300
atccaagagg gcagacacac tagcgtttga aatgaagcgg cttgaagaaa aacatgaagc
                                                                     360
tttacttaag gaaaaagaga gactaattga gcagcgtgat actttgaaag aaacaaatga
                                                                     420
agagettega tgttcacaag tacaacagga ccacctaaac caaacagatg catctqctac
                                                                     480
aaaaagttat gagaatettg etgetgagat tatgecagtg gaatataggg aggtgtttat
                                                                     540
tegactgeaa catgaaaata agatgetteg ettacaqeaa gaaggetetg aqaatgaacg
                                                                     600
tattgaggaa cttcaggagc agctagaaca gaaacaccgt aaaatgaatg aactggaaac
                                                                     660
tgagcagagg ctgagcaaag agcgtattag agaattgcag cagcagattg aggacctcca
                                                                     720
gaaatettta caggaacaag gttccaagte tgaaggegaa agttccagca aattaaagca
                                                                     780
gaagttggaa gctcatatgg aaaaactcac agaggtccat gaagaattac agaagaaaca
                                                                     840
agaactcatt gaagatcttc agccagatat aaatcaaaat gtacaaaaga tcaatgaact
                                                                     900
tgaagctgct cttcagaaga aagatgaaga tatgaaagca atggaggaaa gatataaaaat
                                                                     960
gtacttggag aaagccagaa atgtaataaa aactttggat cccaagttaa atccagcatc
                                                                    1020
agctgaaata atgctactaa gaaagcagtt ggcagagaaa gagagaagaa ttgagattet
                                                                    1080
ggagagtgaa tgcaaagtag caaaattccg tgattatgaa gaaaactcat tgtttctgcq
                                                                    1140
tggtataata agagtctagc attccagaaa ctggggatgg aatctagact tgtgagcggc
                                                                    1200
ggtggtgcct gcagtgacac tggtgcgtgc actcctgcgc ggtctttctt agcgcagcaa
                                                                    1260
cggcacatca ccaacaccag aagaaatete tetgttaaag teeetgetac aacatetgat
                                                                    1320
1367
      <210> 680
      <211> 2545
      <212> DNA
     <213> Homo Sapiens
      <400> 680
ggatccaaag attcggcacg aggcggagtc gcagcctcgg tcccggagcc caccttcgcc
                                                                      60
tegecettge ccagcetgeg gtgatggagg eggecaceae aetgeaceca ggecegegee
                                                                     120
eggegetgee ceteggggge eegggeeege tgggegagtt eetgeeteea eeegagtgee
                                                                     180
cggtcttcga acccagctgg gaagagttcg cggacccctt cgctttcatc cacaagatcc
                                                                     240
ggcccatagc cgagcagact ggcatctgta aggtgcggcc gccgccggat tggcagccac
                                                                     300
catttgcatg tgatgttgat aaacttcatt ttacgccacg tatccagaga ctgaatgaat
                                                                     360
tggaggccca aactcgtgta aaattgaatt tcttggacca gattgcaaag tactgggagt
                                                                     420
tacagggaag tactctgaaa attccacatg tggagaggaa gatcttggac ttatttcagc
                                                                     480
ttaataagtt agttgcagaa gaaggtggat ttgcagttgt ttgcaaggat agaaaatgga
                                                                     540
ccaaaattgc taccaagatg gggtttgctc ctggcaaagc agtgggctca catatcagag
                                                                     600
```

ggcattatga acgaattete aaccectaca acttatteet gteeggagae agectaaggt

gtttgcagaa gccaaacctg accacagaca ctaaggacaa ggagtacaaa ccccatgata

```
ttecceagag geagtetgtg cageettegg aaacgtgeee eecageeega egageaaaac
                                                                      780
qcatgagagc agaggccatg aatattaaaa tagaacccga ggagacaaca gaagccagaa
                                                                      840
ctcataatct gagacgtcga atgggttgtc caactccaaa atgtgaaaat gagaaagaaa
                                                                      900
tgaagagtag catcaagcaa gaacctattg agaggaaaga ttatattgta gaaaatqaqa
                                                                      960
aggaaaagcc caagagtcga totaaaaaag ccaccaatgc tgtggacctg tatgtctgtc
                                                                     1020
ttttatgtgg cagtggcaat gatgaagacc ggctactgtt gtgtgatggc tgtgatgaca
                                                                     1080
gttaccatac cttttgcttg atcccacctc tccatgatgt tcccaaggga gactggaggt
                                                                     1140
gtcctaagtg tttggctcag gaatgtagta agccacaaga agcatttggc tttgaacaag
                                                                     1200
cagccaggga ctataccete cgtacttttg gggaaatgge agatgegtte aaatetgatt
                                                                     1260
acttcaacat gccagtccat atggtcccca cagagcttgt tgagaaagaa ttttggagac
                                                                     1320
taqtaagcac tattgaggag gatgtcacag tggaatatgg agctgacatt gcctcaaagg
                                                                     1380
aatttggcag tggctttcct gtccgagatg ggaaaatcaa actctcacct gaggaagagg
                                                                     1440
agtatettga tagtggetgg aatttgaaca acatgccagt gatggagcag tetgteettg
                                                                     1500
cacatattac tgctgatata tgtggcatga aacttccttg gttgtatgtg ggaatgtgct
                                                                     1560
tttcttcatt ctgttggcac attgaagacc actggagcta ttcaattaac tacttgcact
                                                                     1620
ggggtgagcc aaaaacctgg tatggagtcc cagggtatgc tgctgagcag ctagaaaatq
                                                                     1680
taatgaagaa actageteea gaactetttg tgteecagee ggateteete cateagettg
                                                                     1740
tgaccatcat gaaccccaat accctgatga ctcatgaagt gcctgtttac cgaactaatc
                                                                     1800
agtgtgctgg ggagtttgtg attacatttc caagagccta ccacagtgtt ttaaccaggg
                                                                     1860
ttttaatttt getgaggetg ttaacttetg cactgttgat tggetgecat taggeegaca
                                                                     1920
gtgtgtggag cattatcgct tgcttcatcg atattgtgtg ttttcccatg atgagatgat
                                                                     1980
ctgcaagatg gcttccaagg ctgatgtatt agatgttgta gtggcttcaa ctgttcagaa
                                                                     2040
agacatggcc attatgattg aggatgagaa agctttaaga gaaactgtcc gtaaattggg
                                                                     2100
agtgattgat tcggaaagaa tggattttga gctgttgcca gatgatgaac gtcagtgtgt
                                                                     2160
aaaatgcaaa actacatgct tcatgtctgc catctcctgt tcttgtaaac ctggcettct
                                                                     2220
tgtttgcctg catcatgtaa aagaattgtg ttcctgtcct ccttataaat ataaattgcq
                                                                     2280
gtataggtac acgctggatg atctctaccc tatgatgaat gcattgaagc ttcgagcaga
                                                                     2340
atottacaac gaatgggcet tgaatgtgaa tgaagetttg gaggcaaaga tcaacaagaa
                                                                     2400
gaaaagtatg tgatacagaa agtgacttgg tgattggcaa attggggctt attgtgatgt
                                                                     2460
agccaaatta aagtcaacaa aacattaaaa aaaaaaaaa aaaactcgag agtacttcta
                                                                     2520
gagcgccgcg ggcccatcga ttttc
                                                                     2545
     <210> 681
     <211> 1745
      <212> DNA
      <213> Homo Sapiens
      <400> 681
ctagtggatc caaagaattc ggcacgaggg aagatggctt cgtttcggaa gctaacgctt
                                                                       60
tetgaaaaag tgeegecaaa teateecagt eggaaaaagg ttaaetteet agatatgtet
                                                                      120
ctagacgaca ttataatcta taaagagtta gaagggacaa atgctgaaga agaaaagaat
                                                                      180
aaaagacaga accatagtaa aaaggaatcg ccttcaagac agcaatcaaa agctcataga
                                                                      240
categocate ggagaggeta etcaagatge agaageaact etgaggaagg aaateatgat
                                                                      300
aaaaaaaccat cccaaaaacc ttctggattc aagtctggac aacacccttt aaatgggcag
                                                                      360
cctttaattg agcaggagaa gtgcagtgac aattatgagg cccaagcaga gaagaatcaa
                                                                      420
ggccagtcag aggggaacca gcatcaatca gaaggaaatc cggacaaatc agaagaatcc
                                                                      480
cagggccaac cagaagaaaa tcatcattct gagcgatccc gaaaccactt agagagatct
                                                                      540
ctttctcagt cagacagatc tcaagggcag ctaaagagac atcatcccca atatgagaga
                                                                      600
totcatggcc aatacaagag atotcatggt caatotgaga gatotcatgg ccactcagag
                                                                      660
agateteatg gteacteaga gagateteat ggteacteag agagatetea tggteactea
                                                                      720
aagagatete gtagecaggg agatettgtg gacacteaga gtgateteat agecacteag
                                                                      780
agagatetea tagecaetea gaaagatete atagecaete agagagatet catagecaet
                                                                      840
cagagagate teatagteae teagagagat etegtggeea etgagagaga teteataaat
                                                                      900
```

960

1020

cagtcaggga gatctcatgg ccaatcagaa agacatcaga gatactcaac aggtaaaaat

acaataacta cttaatcatc agaacaatgt gttgaattct gtggaaatag aaaagcatat

1740

1745

```
atctatattc taatggctaa atatgtattt gttgaaacat gtatattggg acaaagacat
                                                                   1080
aaatattaga atggaggtaa tacatacata gtatcaatat tgtttcaact tgatgtcctc
taagctatca tecagttace caagatgtee cattaagttg tteceggtag gtetgettte
                                                                   1200
cctggaagag ccgtatgtac tcagcctttc ctattgggcc ttccccacaa ttagaatatt
                                                                   1260
ttgacttagt gtcctgtccc ccttggacgt tccaacttga cttagtgtcc agtgcccctt
                                                                   1320
ggacattcca acctggtagg taagctaatc taacaactaa ctgccaaatt gataatatat
aatctatgat aatgaatatc tettttgtgt eteetteeta agecateete agagagteet
tagcagacaa atggtagatg tatctttggg cagctgaact tttctgcttt cctcaaatca
gaccatatga gaggatatat totatgcata gatgtaatgc taaccttotg aatatatttt
gaatacattt atatattcac tgttgcctta taaaactgtt agggtaggtc tgtctaccct
                                                                   1620
agcaaaagaa acacagaaat ttaaatgtac tgggagttat kkkkttaaaa acacaagata
                                                                   1680
1740
aaaac
                                                                   1745
     <210> 682
      <211> 1745
      <212> DNA
      <213> Homo Sapiens
      <400> 682
ctagtggatc caaagaattc ggcacgaggg aagatggctt cgtttcggaa gctaacgctt
                                                                     60
totgaaaaaag tgoogccaaa toatoccagt oggaaaaagg ttaacttoot agatatgtot
                                                                    120
ctagacgaca ttataatcta taaagagtta gaagggacaa atgctgaaga agaaaagaat
                                                                    180
aaaagacaga accatagtaa aaaggaatcg ccttcaagac agcaatcaaa agctcataga
                                                                    240
categocate ggagaggeta etcaagatge agaagcaact etgaggaagg aaatcatgat
                                                                    300
aaaaaaaccat cccaaaaacc ttctggattc aagtctggac aacacccttt aaatgggcag
                                                                    360
cctttaattg agcaggagaa gtgcagtgac aattatgagg cccaagcaga gaagaatcaa
                                                                    420
ggccagtcag aggggaacca gcatcaatca gaaggaaatc cggacaaatc agaagaatcc
cagggccaac cagaagaaaa tcatcattct gagcgatccc gaaaccactt agagagatct
                                                                    540
ctttctcagt cagacagate tcaagggcag ctaaagagac atcatcccca atatgagaga
                                                                    600
teteatggee aatacaagag ateteatggt caatetgaga gateteatgg ceaeteagag
                                                                    660
agateteatg gteacteaga gagateteat ggteacteag agagatetea tggteactea
                                                                    720
aaqagatete gtagecaggg agatettgtg gacacteaga gtgateteat agecacteag
                                                                    780
agagatetea tagecaetea gaaagatete atagecaete agagagatet catagecaet
                                                                    840
cagagagatc tcatagtcac tcagagagat ctcgtggcca ctgagagaga tctcataaat
                                                                    900
cagtcaggga gatctcatgg ccaatcagaa agacatcaga gatactcaac aggtaaaaaat
                                                                    960
acaataacta cttaatcatc agaacaatgt gttgaattct gtggaaatag aaaagcatat
                                                                   1020
atctatattc taatggctaa atatgtattt gttgaaacat gtatattggg acaaagacat
                                                                   1080
aaatattaga atggaggtaa tacatacata gtatcaatat tgtttcaact tgatgtcctc
                                                                   1140
taagctatca tocagttacc caagatgtee cattaagttg tteeeggtag gtetgettte
                                                                   1200
cetggaagag cegtatgtac teageettte etattgggee tteeccacaa ttagaatatt
                                                                   1260
ttgacttagt gtcctgtccc ccttggacgt tccaacttga cttagtgtcc agtgccctt
                                                                   1320
ggacatteca acctggtagg taagctaate taacaactaa etgecaaatt gataatatat
                                                                   1380
aatctatgat aatgaatatc tottttgtgt otcottoota agccatcotc agagagtoot
                                                                   1440
tagcagacaa atggtagatg tatctttggg cagctgaact tttctgcttt cctcaaatca
gaccatatga gaggatatat totatgcata gatgtaatgc taacettotg aatatatttt
gaatacattt atatattcac tgttgcctta taaaactgtt agggtaggtc tgtctaccct
                                                                   1620
agcaaaagaa acacagaaat ttaaatgtac tgggagttat kkkkttaaaa acacaagata
```

aaaac

<210> 683

<211> 3127

<212> DNA

<213> Homo Sapiens

<400> 683

3127

attaccc

gaattcggca cgagggtcag caattgctta gggcggaatg cgatttcggg ggaggaggcg cgggtatgta gacagagggg gttgggacac accaggaggg gaggagccag ccccagagat 120 egggaateet eteagteett agttacaagg etecateete aetttgtteg eteeteagte 180 gtccaggcgg attccttttt cgccaggcac caaggcacag cttagagtag acccgagtcc 240 tgetetgegg agtteetett cccagegaag gtacagagge ggatgaactg etgagaettg 300 attgacgtat tttaagattt ttttaacttc tgaagtctag caggcctgta agaacaaaaa tcattctgta ggaattaaaa acagaatcca gtcttgacaa catatccaca atgtctgatg 420 tatctactag tgtacaatca aaatttgata gacttgcaaa gaaaaaggaa aatatcacct 480 atatgagcag agagcagtta acagaaactg ataaggacat agctccggta ttagcattta 540 aaagtcaagg acgtatcage aattatgaat aagtttaagg tettaatgga aattcaagac 600 ctgatgtttg aggagatgag ggaaactctt aaaaatgacc taaaagcagt tttaggagga 660 aaagetacaa tacctgaggt aaagaattca gagaactcca gtagtaggca ggtttcagca 720 aataatcaat ttagcattac aaaaaacagg gatggtaggg aaaatagaag gagaaactct 780 aaaataggtg atgataatga aaatttaacc tttaaattag aagtaaatga gctgagtggt 840 aaattagaca acactaacga atacaatagt aatgatggta agaaattacc ccagggtgaa 900 tcacgaagtt acgaagtcat gggaagtatg gaagaaacct tatgcaatat agatgacaga 960 gatggaaatc gcaatgtcca tttagaattt acagaaagag agagtaggaa ggatggagag 1020 gatgaatttg tcaaagaaat gagagaggaa agaaaatttc agaaattgaa gaataaagag 1080 gaggttttaa aagcctccag agaagaaaaa gtgttgatgg atgaaggagc agtacttacc 1140 ctggcagccg acctttcatc agcaacactg gatattagta agcaatggag taatgtcttc 1200 aacattctga gagaaaatga ttttgaacct aaatttctgt gtgaagttaa attagcattt 1260 aaatqtgatg gtgaaataaa gacattttca gatctgcaaa gccttagaaa atttgccaqc 1320 caaaaaatctt ctatganaga wttactgana gatgtactcc cacaaaagga agaaataaat 1380 caaggaggaa gaaaatatgg nattcaagaa aaaagggata aaaccctaat agactcanag 1440 catagagetg gagaaataac cagtgatggc ttgagettee tatttettaa agaagtaaaa 1500 gttgctaagc cagaggagat gaaaaactta gagactcaag aggaagagtt ttccgagcta 1560 gaggagctgg atgaagaggc ttcagggatg gaggatgatg aagatacctc agggctggag 1620 gaggaagaag aagaagaggc ttcagggttg gaggaggatg antcctcang gctagaggag 1680 gaagaggaac agacttcaga acaggactca acctttcang gtcatacttt ggtagatgca 1740 aagcatgaag ttgagataac cagtnatggc atggaaacta ctttcattga ctctgtagag 1800 gattctgaat cagaggagga agaggaagga aagagctctg aaacaggaaa ggtaaagact 1860 acctccctga ctgagaaaaa agcctcacgt agacaaaaag aaattccctt tagttatttg 1920 gttggggact ctgggaagaa aaagttggtg aaacaccagg tggtgcacaa aacccaggag gaagaggaaa cagctgtgcc cacaagtcaa ggaactggca caacctgtct gaccttatgt 2040 ttggcctctc cctcaaagtc actagagatg agtcatgatg agcataaaaa gcattcacat 2100 acaaatttga gtatttcaac aggagtcacc aaacttaaga aaacagaaga aaagaaacac 2160 aggactetge acacagaaga actaacatee aaagaageag acttaacaga ggaaacagaa 2220 gaaaacttga gaagtagtgt gattaatagc atcagagaga taaaagagga gattggaaat 2280 ttgaaaagtt cccattcagg tgtcttggaa attgaaaatt cagtagatga tctgagtagc 2340 agaatggaca toottgaaga aagaatagac agtotagaag atcaaattga agaattotot 2400 aaggatacaa tgcaaatgac caaacagata attagtaaag aagggccnag agatatagag 2460 gagagatcta gaagttgcaa cattcgtttg ataggaattc cagaaaagga gagttatgag 2520 aatagggcag aggacataat taaggaaata attgatgaaa actttgcaga actaaagaaa 2580 ggttcaagtc ttgagattgt cagtgcttgt cgagtaccta gtaaaattga tgaaaagaga 2640 ctgactccta gacacatctt ggtgaaattt tggaattcta gtgataaaga gaaaataata 2700 aggeetteta gagagagaag agaaattaee taccaaggaa caagaatcag gttgacagca 2760 gacttateae tggacacact ggatgetaga agtaaatgga gcaatgtett caaagttetg 2820 ctggaaaaag getttaaccc tagaacccta tacccagcca aaatggcatt tgattttagg 2880 ggtaaaacaa aggtattoot tagtattgaa gaatttagag attatgtttt gcatatgccc 2940 accttgagag aattactggg gaataatata ccttagcacc ccagggtgac tacaaacaat 3000 atgettteet ecceeageat geacceaaaa accaacaagt aaaacgaaag tacaetteta 3060 cccagaagga tggacagcta ataccgtact tggggatgag gagcaaggaa tattacagat 3120

<210> 684 <211> 803 <212> PRT <213> Homo Sapiens

<400> 684

Met Asn Lys Phe Lys Val Leu Met Glu Ile Gln Asp Leu Met Phe Glu 10 Glu Met Arg Glu Thr Leu Lys Asn Asp Leu Lys Ala Val Leu Gly Gly 25 Lys Ala Thr Ile Pro Glu Val Lys Asn Ser Glu Asn Ser Ser Ser Arg 40 Gln Val Ser Ala Asn Asn Gln Phe Ser Ile Thr Lys Asn Arg Asp Gly 55 Arg Glu Asn Arg Arg Arg Asn Ser Lys Ile Gly Asp Asp Asn Glu Asn 70 Leu Thr Phe Lys Leu Glu Val Asn Glu Leu Ser Gly Lys Leu Asp Asn 90 Thr Asn Glu Tyr Asn Ser Asn Asp Gly Lys Lys Leu Pro Gln Gly Glu 105 Ser Arg Ser Tyr Glu Val Met Gly Ser Met Glu Glu Thr Leu Cys Asn 120 125 Ile Asp Asp Arg Asp Gly Asn Arg Asn Val His Leu Glu Phe Thr Glu 135 Arg Glu Ser Arg Lys Asp Gly Glu Asp Glu Phe Val Lys Glu Met Arg 150 155 Glu Glu Arg Lys Phe Gln Lys Leu Lys Asn Lys Glu Glu Val Leu Lys 165 170 Ala Ser Arg Glu Glu Lys Val Leu Met Asp Glu Gly Ala Val Leu Thr 185 Leu Ala Ala Asp Leu Ser Ser Ala Thr Leu Asp Ile Ser Lys Gln Trp 200 Ser Asn Val Phe Asn Ile Leu Arg Glu Asn Asp Phe Glu Pro Lys Phe 215 220 Leu Cys Glu Val Lys Leu Ala Phe Lys Cys Asp Gly Glu Ile Lys Thr 230 235 Phe Ser Asp Leu Gln Ser Leu Arg Lys Phe Ala Ser Gln Lys Ser Ser 250 Met Xaa Xaa Leu Leu Xaa Asp Val Leu Pro Gln Lys Glu Glu Ile Asn 265 Gln Gly Gly Arg Lys Tyr Gly Ile Gln Glu Lys Arg Asp Lys Thr Leu 280 Ile Asp Ser Xaa His Arg Ala Gly Glu Ile Thr Ser Asp Gly Leu Ser 300 Phe Leu Phe Leu Lys Glu Val Lys Val Ala Lys Pro Glu Glu Met Lys 310 315 Asn Leu Glu Thr Gln Glu Glu Glu Phe Ser Glu Leu Glu Glu Leu Asp 325 330 Glu Glu Ala Ser Gly Met Glu Asp Asp Glu Asp Thr Ser Gly Leu Glu 340 345 Glu Glu Glu Glu Glu Ala Ser Gly Leu Glu Glu Asp Xaa Ser Ser 360 Xaa Leu Glu Glu Glu Glu Gln Thr Ser Glu Gln Asp Ser Thr Phe 375 380 Xaa Gly His Thr Leu Val Asp Ala Lys His Glu Val Glu Ile Thr Ser

```
390
                                     395
Xaa Gly Met Glu Thr Thr Phe Ile Asp Ser Val Glu Asp Ser Glu Ser
              405 410
Glu Glu Glu Glu Gly Lys Ser Ser Glu Thr Gly Lys Val Lys Thr
                              425
Thr Ser Leu Thr Glu Lys Lys Ala Ser Arg Arg Gln Lys Glu Ile Pro
                          440
Phe Ser Tyr Leu Val Gly Asp Ser Gly Lys Lys Leu Val Lys His
                      455
Gln Val Val His Lys Thr Gln Glu Glu Glu Glu Thr Ala Val Pro Thr
                  470
                                     475
Ser Gln Gly Thr Gly Thr Thr Cys Leu Thr Leu Cys Leu Ala Ser Pro
              485
                                 490
Ser Lys Ser Leu Glu Met Ser His Asp Glu His Lys Lys His Ser His
                             505
Thr Asn Leu Ser Ile Ser Thr Gly Val Thr Lys Leu Lys Lys Thr Glu
                         520
                                            525
Glu Lys Lys His Arg Thr Leu His Thr Glu Glu Leu Thr Ser Lys Glu
                     535
                                         540
Ala Asp Leu Thr Glu Glu Thr Glu Glu Asn Leu Arg Ser Ser Val Ile
                 550
                                     555
Asn Ser Ile Arg Glu Ile Lys Glu Glu Ile Gly Asn Leu Lys Ser Ser
              565
                                 570
His Ser Gly Val Leu Glu Ile Glu Asn Ser Val Asp Asp Leu Ser Ser
                             585
Arg Met Asp Ile Leu Glu Glu Arg Ile Asp Ser Leu Glu Asp Gln Ile
                          600
Glu Glu Phe Ser Lys Asp Thr Met Gln Met Thr Lys Gln Ile Ile Ser
                     615
Lys Glu Gly Pro Arg Asp Ile Glu Glu Arg Ser Arg Ser Cys Asn Ile
                 630
                                     635
Arg Leu Ile Gly Ile Pro Glu Lys Glu Ser Tyr Glu Asn Arg Ala Glu
              645
                                 650
Asp Ile Ile Lys Glu Ile Ile Asp Glu Asn Phe Ala Glu Leu Lys Lys
                             665
Gly Ser Ser Leu Glu Ile Val Ser Ala Cys Arg Val Pro Ser Lys Ile
                          680
                                             685
Asp Glu Lys Arg Leu Thr Pro Arg His Ile Leu Val Lys Phe Trp Asn
                      695
                                         700
Ser Ser Asp Lys Glu Lys Ile Ile Arg Pro Ser Arg Glu Arg Arg Glu
                  710
                                     715
Ile Thr Tyr Gln Gly Thr Arg Ile Arg Leu Thr Ala Asp Leu Ser Leu
              725
                                 730
Asp Thr Leu Asp Ala Arg Ser Lys Trp Ser Asn Val Phe Lys Val Leu
                             745
Leu Glu Lys Gly Phe Asn Pro Arg Thr Leu Tyr Pro Ala Lys Met Ala
                          760
Phe Asp Phe Arg Gly Lys Thr Lys Val Phe Leu Ser Ile Glu Glu Phe
                      775
                                        780
Arg Asp Tyr Val Leu His Met Pro Thr Leu Arg Glu Leu Leu Gly Asn
                  790
                                     795
Asn Ile Pro
```

<210> 685

<211> 947 <212> PRT

<213> Homo Sapiens

<400> 685 Met Ser Leu Pro Ser Arg Gln Thr Ala Ile Ile Val Asn Pro Pro Pro Pro Glu Tyr Ile Asn Thr Lys Lys Asn Gly Arg Leu Thr Asn Gln Leu 20 25 Gln Tyr Leu Gln Lys Val Val Leu Lys Asp Leu Trp Lys His Ser Phe 40 Ser Trp Pro Phe Gln Arg Pro Val Asp Ala Val Lys Leu Lys Leu Pro Asp Tyr Tyr Thr Ile Ile Lys Asn Pro Met Asp Leu Asn Thr Ile Lys 75 Lys Arg Leu Glu Asn Lys Tyr Tyr Ala Lys Ala Ser Glu Cys Ile Glu 90 Asp Phe Asn Thr Met Phe Ser Asn Cys Tyr Leu Tyr Asn Lys Pro Gly 100 105 Asp Asp Ile Val Leu Met Ala Gln Ala Leu Glu Lys Leu Phe Met Gln 115 120 Lys Leu Ser Gln Met Pro Gln Glu Glu Gln Val Val Gly Val Lys Glu 135 140 Arg Ile Lys Lys Gly Thr Gln Gln Asn Ile Ala Val Ser Ser Ala Lys 150 155 Glu Lys Ser Ser Pro Ser Ala Thr Glu Lys Val Phe Lys Gln Gln Glu 165 170 Ile Pro Ser Val Phe Pro Lys Thr Ser Ile Ser Pro Leu Asn Val Val 180 185 Gln Gly Ala Ser Val Asn Ser Ser Ser Gln Thr Ala Ala Gln Val Thr 200 Lys Gly Val Lys Arg Lys Ala Asp Thr Thr Thr Pro Ala Thr Ser Ala 215 220 Val Lys Ala Ser Ser Glu Phe Ser Pro Thr Phe Thr Glu Lys Ser Val 230 235 Ala Leu Pro Pro Ile Lys Glu Asn Met Pro Lys Asn Val Leu Pro Asp 245 250 Ser Gln Gln Gln Tyr Asn Val Val Glu Thr Val Lys Val Thr Glu Gln 265 Leu Arg His Cys Ser Glu Ile Leu Lys Glu Met Leu Ala Lys Lys His 280 Phe Ser Tyr Ala Trp Pro Phe Tyr Asn Pro Val Asp Val Asn Ala Leu 295 Gly Leu His Asn Tyr Tyr Asp Val Val Lys Asn Pro Met Asp Leu Gly 310 315 Thr Ile Lys Glu Lys Met Asp Asn Gln Glu Tyr Lys Asp Ala Tyr Ser 325 330 Phe Ala Ala Asp Val Arg Leu Met Phe Met Asn Cys Tyr Lys Tyr Asn 345 Pro Pro Asp His Glu Val Val Thr Met Ala Arg Met Leu Gln Asp Val 360 Phe Glu Thr His Phe Ser Lys Ile Pro Ile Glu Pro Val Glu Ser Met 375 380 Pro Leu Cys Tyr Ile Lys Thr Asp Ile Thr Glu Thr Thr Gly Arg Glu

395

```
Asn Thr Asn Glu Ala Ser Ser Glu Gly Asn Ser Ser Asp Asp Ser Glu
               405
                                  410
Asp Glu Arg Val Lys Arg Leu Ala Lys Leu Gln Glu Gln Leu Lys Ala
                              425
Val His Gln Gln Leu Gln Val Leu Ser Gln Val Pro Phe Arg Lys Leu
                          440
Asn Lys Lys Glu Lys Ser Lys Lys Glu Lys Lys Glu Lys Val
                      455
                                          460
Asn Asn Ser Asn Glu Asn Pro Arg Lys Met Cys Glu Gln Met Arg Leu
                  470
                                      475
Lys Glu Lys Ser Lys Arg Asn Gln Pro Lys Lys Arg Lys Gln Gln Phe
               485
                                  490
Ile Gly Leu Lys Ser Glu Asp Glu Asp Asn Ala Lys Pro Met Asn Tyr
                              505
Asp Glu Lys Arg Gln Leu Ser Leu Asn Ile Asn Lys Leu Pro Gly Asp
                          520
Lys Leu Gly Arg Val Val His Ile Ile Gln Ser Arg Glu Pro Ser Leu
                      535
Ser Asn Ser Asn Pro Asp Glu Ile Glu Ile Asp Phe Glu Thr Leu Lys
                  550
                                      555
Ala Ser Thr Leu Arg Glu Leu Glu Lys Tyr Val Ser Ala Cys Leu Arg
              565
                                  570
Lys Arg Pro Leu Lys Pro Pro Ala Lys Lys Ile Met Met Ser Lys Glu
                              585
Glu Leu His Ser Gln Lys Lys Gln Glu Leu Glu Lys Arg Leu Leu Asp
                          600
Val Asn Asn Gln Leu Asn Ser Arg Lys Arg Gln Thr Lys Ser Asp Lys
                      615
                                          620
Thr Gln Pro Ser Lys Ala Val Glu Asn Val Ser Arg Leu Ser Glu Ser
                  630
                                      635
Ser Ser Ser Ser Ser Ser Ser Glu Ser Glu Ser Ser Ser Ser Asp
              645
                                  650
Leu Ser Ser Ser Asp Ser Ser Asp Ser Glu Ser Glu Met Phe Pro Lys
                             665
Phe Thr Glu Val Lys Pro Asn Asp Ser Pro Ser Lys Glu His Val Lys
       675
                         680
Lys Met Lys Asn Glu Cys Ile Leu Pro Glu Gly Arg Thr Gly Val Thr
                      695
                                          700
Gln Ile Gly Tyr Cys Val Gln Asp Thr Thr Ser Ala Asn Thr Thr Leu
                   710
                                      715
Val His Gln Thr Thr Pro Ser His Val Met Pro Pro Asn His His Gln
               725
                                   730
Leu Ala Phe Asn Tyr Gln Glu Leu Glu His Leu Gln Thr Val Lys Asn
           740
                              745
Ile Ser Pro Leu Gln Ile Leu Pro Pro Ser Gly Asp Ser Glu Gln Leu
                           760
Ser Asn Gly Ile Thr Val Met His Pro Ser Gly Asp Ser Asp Thr Thr
                       775
                                          780
Met Leu Glu Ser Glu Cys Gln Ala Pro Val Gln Lys Asp Ile Lys Ile
                   790
                                      795
Lys Asn Ala Asp Ser Trp Lys Ser Leu Gly Lys Pro Val Lys Pro Ser
               805
                                   810
Gly Val Met Lys Ser Ser Asp Glu Leu Phe Asn Gln Phe Arg Lys Ala
                               825
Ala Ile Glu Lys Glu Val Lys Ala Arg Thr Gln Glu Leu Ile Arg Lys
```

```
840
His Leu Glu Gln Asn Thr Lys Glu Leu Lys Ala Ser Gln Glu Asn Gln
                        855
Arg Asp Leu Gly Asn Gly Leu Thr Val Glu Ser Phe Ser Asn Lys Ile
                                        875
Gln Asn Lys Cys Ser Gly Glu Glu Gln Lys Glu His Pro Gln Ser Ser
Glu Ala Gln Asp Lys Ser Lys Leu Trp Leu Leu Lys Asp Arg Asp Leu
                                905
Ala Arg Pro Lys Glu Gln Glu Arg Arg Arg Glu Ala Met Val Gly
                            920
Thr Ile Asp Met Thr Leu Gln Ser Asp Ile Met Thr Met Phe Glu Asn
    930
                        935
                                            940
Asn Phe Asp
945
      <210> 686
      <211> 3106
      <212> DNA
      <213> Homo Sapiens
      <400> 686
gtggcaagat gttcctggga ggtcaagtta agagtcaaaa ataattcatt agatttaaca
                                                                       60
atttagcatg gacatgtact tgtagacagg attcaaagca gttaagaatg tctctgccaa
                                                                      120
gtcgacaaac agctattatt gttaaccctc ctccaccaga atatataaat actaagaaaa
                                                                      180
atgggcgatt gacaaatcaa cttcagtatc tacaaaaagt tgtcctaaag gatttatgga
                                                                       240
agcatagttt ttcatggccc tttcaacgtc ctgtggatgc tgtgaaacta aagttgcctg
                                                                      300
attattatac cattataaaa aacccaatgg atttaaatac aattaagaag cgcttggaga
                                                                      360
ataaatatta tgcgaaggct tcagaatgta tagaagactt caatacaatg ttctcaaatt
                                                                      420
gttatttata taacaagect ggagatgaca ttqttcttat qqcacaaqet ctagagaage
                                                                      480
tgtttatgca gaaattatct cagatgccac aagaagagca agttgtgggt gttaaggaaa
                                                                      540
qaatcaagaa aggcactcaa cagaatatag ctgtttcttc tgctaaagaa aaatcatcac
                                                                      600
ccagcgcaac agaaaaagta tttaagcagc aagaaattcc ttctgtattt cctaagacat
ctatttctcc cttgaacgtg gtacagggag cttcagtcaa ctccagttca caaactgcgg
cccaagttac aaaaggtgtg aagaggaaag cagatacaac aactcctgca acttcagcag
                                                                      780
ttaaagcaag tagtgaattt tctccaacat tcacagaaaa atcaqtqqca ctqccaccta
                                                                      840
taaaagaaaa tatgccaaag aatgttttgc cagattctca gcaacaatat aatgttgtgg
                                                                       900
agactgttaa agtaactgaa caattaaggc actgtagtga gattcttaaa gaaatgcttg
                                                                       960
caaagaaaca tttttcatat gcatggccct tttataatcc tgttgacgtt aatgctttgg
                                                                     1020
gactecataa etaetatgae gttgtcaaaa ateegatgga tettggaaet attaaggaga
                                                                      1080
aaatggataa ccaagaatat aaggatgcat actcatttgc ggcagatgtt agattaatgt
                                                                      1140
tcatgaattg ctacaagtac aatcctccag atcacgaagt tgtgacaatg gcaagaatgc
                                                                     1200
ttcaggatgt tttcgaaacg catttttcaa agatcccgat tgaacctgtt gagagtatgc
ctttatgtta catcaaaaca gatatcacag aaaccactgg tagagagaac actaatgaag
                                                                     1320
cctcctctga agggaactct tctgatgatt ctgaagatga gcgagttaag cgtcttgcaa
                                                                     1380
agetteagga geagettaaa getgtacate aacageteea ggttttgtee caagtacett
                                                                      1440
tccgtaagct aaataaaaag aaagagaagt ctaaaaagga aaagaaaaaa gaaaaggtta
                                                                      1500
ataacagcaa tgaaaatcca agaaaaatgt gtgagcaaat gaggctaaag gaaaagtcca
                                                                      1560
agagaaatca gccaaagaaa aggaaacaac agttcattgg tctaaaatct gaagatgaag
                                                                     1620
ataatgctaa acctatgaac tatgatgaga aaaggcagtt aagtctgaat ataaacaaac
tecetggaga taaacttggg egagtagtte acataataca atcaagagag eettetetga
                                                                     1740
gcaattccaa tcctgatgag atagagatag actttgaaac actgaaagca tcaacactaa
                                                                      1800
gagaattaga aaaatatgtt toggoatgto taagaaagag accattaaaa cotootgota
                                                                      1860
agaaaataat gatgtccaaa gaagaacttc actcacagaa aaaacaggaa ttggaaaagc
                                                                     1920
```

1980

ggttactgga tgttaataat cagttaaatt ctagaaaacg tcaaacaaaa tctgataaaa

```
cgcaaccatc caaagctgtt gaaaatgttt cccgactgag tgagagcagc aqcaqcaqca
                                                                     2040
gcagctcatc agagtctgaa agtagcagca gtgacttaag ctcttcagac agcagtgatt
                                                                     2100
ctgaatcaga aatgttccct aagtttacag aagtaaaacc aaatgattct ccttctaaag
                                                                     2160
agcatgtaaa gaaaatgaag aatgaatgca tactgcctga aggaagaaca ggcgtcacac
                                                                     2220
agataggata ttgtgtgcaa gacacaacct ctgccaatac tacccttgtt catcagacca
                                                                     2280
caccttcaca tgtaatgcca ccaaatcacc accaattagc atttaattat caaqaattag
                                                                     2340
aacatttaca gactgtgaaa aacatttcac ctttacaaat tctgcctccc tcaggtgatt
                                                                     2400
ctgaacagct ctcaaatggc ataactgtga tgcatccatc tggtgatagt gacacaacga
                                                                     2460
tgttagaatc tgaatgtcaa gctcctgtac agaaggatat aaagattaag aatgcagatt
catggaaaag tttaggcaaa ccagtgaaac catcaggtgt aatgaaatcc tcagatgagc
                                                                     2580
tottcaacca atttagaaaa gcagccatag aaaaqqaaqt aaaaqctcqq acacaqqaac
                                                                     2640
tcatacggaa gcatttggaa caaaatacaa aggaactaaa agcatctcaa gaaaatcaga
                                                                     2700
gggatcttgg gaatggattg actgtagaat ctttttcaaa taaaatacaa aacaagtgct
                                                                     2760
ctggagaaga gcagaaagaa catccgcagt catcagaagc tcaaqataaa tccaaactct
                                                                     2820
ggetteteaa agacegtgat ttageeaqqe eqaaaqaaca agaqaqqaq agqaqagaaq
                                                                     2880
ccatggtggg taccattgat atgaccette aaagtgacat tatgacaatg tttgaaaaca
                                                                     2940
actttgatta aaactcagtt tttaaattaa ccatccactt aaaatgaatg gtaaaagatc
                                                                     3000
aaaatgcata tggtaaaatg attgctttca gataacaaga taccaatctt atattgtatt
                                                                     3060
ttgactgctc taaaatgatt aaacagtttt cacttacaaa aaaaaa
                                                                     3106
      <210> 687
      <211> 1759
      <212> DNA
      <213> Homo Sapiens
      <400> 687
gtcactccgc aattagacag ctaagagatc tgtgttactt ccctcacata tataaataat
                                                                       60
tttaaataaa aatcatggcg tgaataattt ctttcctcta ccgatttgaa gctatccatt
                                                                      120
```

tggaagacca ctctgaagag atgaaataag tcttctgcca aagattactt attaatttac 180 aaggaaaagg ggaagttttg ttcctctccg tgaatttgat tgaaaatcga gggctttctc 240 gaatagtttt ggcatccagg gtcatttttc attaaaaaga gaaaagtcat gtcaaatatg 300 aatttccgca gattattcag cactagaccc tgggagattc tgtaaagagg ggttttgtta 360 tactcaactt ttccgggtaa aacaaacaca aatactcctc ctccaagggg cgggggggt 420 gcctaggtga tgcaccaatc acagegegee ctaccetata taageceega ggeegeeegg 480 gtgtttcatg cttttcgctg gttattacat cttgcgtttc tctgttgtta tgtctgaaac 540 cgtgcctgca gcttctgcca gtgctggtct agccgctatg gagaaacttc caaccaaqaa 600 gcgagggagg aagccggctg gcttgataag tgcaagtcgc aaaqtqccqa acctctctqt 660 gtccaagttg atcaccgagg ccctttcagt gtcacaggaa cgagtaggta tgtctttggt 720 tgcgctcaag aaggcattgg ccgctgctgg ctacgacgta gagaagaata acagccgcat 780 caaactgtcc ctcaagagct tagtgaacaa gggaatcctg gtgcaaacca ggggtactgg 840 tgetteeggt teetttaage ttagtaagaa ggtgatteet aaatetacae gaageaagge 900 taaaaagtca gtttctgcca agaccaagaa gctggtttta tccagggact ccaagtcacc 960 aaagactgct aaaaccaata agagagccaa gaagccgaga qcqacaactc ctaaaactgt 1020 taggageggg agaaaggeta aaggagecaa gggtaageaa cagcagaaga geecagtgaa 1080 ggcaagggct tcgaagtcaa aattgaccca acatcatgaa gttaatgtta gaaaggccac 1140 atctaagaag taaagagctt tccgggaggc caatttggaa agaacccaaa ggctctttta 1200 agagccaccc acattatttt aagatggcgt aacactggaa acaagtttct gtgacagtta 1260 totataggtt taagttgtga tgcagctgag ttgaaaaggc ttgagattgg agaattaatt 1320 caggccaggc ttcaagacca tcctgggcaa catagccaga ctaccatcta taccaggggt 1380 ceteattece ceggecaceg aceggtaace ggteeetgte catggcacgt tatgaattqa 1440 geogeacage tgaggggtga gegaacatta accaactgag etceacegee tqteaggtta 1500 gctgcagcat tagatagatt ctcataagct caaactgtat tgtgaatggc acatgcaagg 1560 gatctaggtt tcaggctcct tgtgacaatc taatqcctqa tqatctqaqq ttqqaqcagt 1620 tttagtccgg aaatcattgc tcccagcccc tgcaccccct ggtccgtggt ataattgtct 1680 tacacaaacg gtctcttgtg tcaaaaaggt tggagactac tggtttttac aaaaaagtaa 1740

1759

attagtcaag catggttgg

<210> 688
<211> 207
<212> PRT
<213> Home Sapiens

<400> 688

Met Ser Glu Thr Val Pro Ala Ala Ser Ala Ser Ala Gly Leu Ala Ala

1 5 10 15

Met Glu Lys Leu Pro Thr Lys Lys Arg Gly Arg Lys Pro Ala Gly Leu

20 25 30

Ile Ser Ala Ser Arg Lys Val Pro Asn Leu Ser Val Ser Lys Leu Ile

35 40 45

Thr Glu Ala Leu Ser Val Ser Gln Glu Arg Val Gly Met Ser Leu Val

50 Ala Leu Lys Lys Ala Leu Ala Ala Ala Gly Tyr Asp Val Glu Lys Asn 65 70 75 80
Asn Ser Arg Ile Lys Leu Ser Leu Lys Ser Leu Val Asn Lys Gly Ile

85 90 95 Leu Val Gln Thr Arg Gly Thr Gly Ala Ser Gly Ser Phe Lys Leu Ser

100 105 Lys Lys Val Ile Pro Lys Ser Thr Arg Ser Lys Ala Lys Lys Ser Val

115 120 125 Ser Ala Lys Thr Lys Lys Leu Val Leu Ser Arg Asp Ser Lys Ser Pro

130 135 140 140 Lys Thr Ala Lys Thr Asn Lys Arg Ala Lys Lys Pro Arg Ala Thr Thr 145 150 150 155

Pro Lys Thr Val Arg Ser Gly Arg Lys Ala Lys Gly Ala Lys Gly Lys 165 170 175

Gln Gln Lys Ser Pro Val Lys Ala Arg Ala Ser Lys Ser Lys Leu 180 185 190

Thr Gln His His Glu Val Asn Val Arg Lys Ala Thr Ser Lys Lys

<210> 689

<211> 1464

<212> DNA

<213> Homo Sapiens

<400> 689

agtaccgggt acgcaggggt gcctcaacca cactccgtcc acggactctc cgttatttta 60 ggaggteeet ggecaaagat ttatttetet tgacaaccaa gggeeteegt etggatttee 120 aaggaagaat ttoctotgaa goaccggaac ttgotactac cagcaccatg coctaccaat 180 atccagcact gaccccggag cagaagaagg agctgtctga catcgctcac cgcatcgtgg 240 cacctggcaa gggcatcctg gctgcagatg agtccactgg gagcattgcc aagcggctgc 300 agtocattgg caccgagaac accgaggaga accggcgctt ctaccgccag ctgctgctga 360 cagetgaega cegegtgaac ceetgeattg ggggtgteat cetetteeat gagacactet 420 accagaaggc ggatgatggg cgtcccttcc cccaagttat caaatccaag ggcggtgttg tgggcatcaa ggtagacaag ggcgtggtcc ccctggcagg gacaaatggc gagactacca 540 cccaagggtt ggatgggctg tctgagcgct gtgcccagta caagaaggac ggagctgact 600 tegecaagtg gegttgtgtg etgaagattg gggaacacac ecceteagee etegecatea tggaaaatgc caatgttctg gcccgttatg ccagtatctg ccagcagaat ggcattgtgc 720 ccatcgtgga gcctgagatc ctccctgatg gggaccatga cttgaagcgc tgccagtatg 780 tgaccgagaa ggtgctggct gctgtctaca aggctctgag tgaccaccac atctacctgg 840

aaggeaeett getgaageee aacatggtea eeccaggeea tgettgeaet eagaagtttt 900 ctcatgagga gattgccatg gcgaccgtca cagcgctgcg ccgcacagtg ccccccgctg tcactgggat caccttcctg tctggaggcc agagtgagga ggaggcgtcc atcaacctca 1020 atgccattaa caagtgcccc ctgctgaagc cctgggccct gaccttctcc tacqqccqaq 1080 ccctgcaggc ctctgccctg aaggcctggg gcgggaagaa ggaqaacctq aaggctgcgc 1140 aggaggagta tgtcaagcga gccctggcca acagccttgc ctgtcaagga aagtacactc 1200 cgageggtca ggctgggget gctgccageg agtccctctt cgtctctaac caegcctatt aageggaggt gtteccagge tgeccccaac aactecagge cetgecccet eccactettq aagaggagge egecteeteg gggeteeagg etggettgee egegetettt etteeetegt 1380 gacagtggtg tgtggtgtcg tctgtgaatg ctaagtccat caccetttcc ggcacactgc 1440 caaataaaca gctatttaaq gqqq 1464

<210> 690 · <211> 363 <212> PRT

<213> Homo Sapiens

<400> 690

Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu Ser 1.0 Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala Ala 25 Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly Thr 40 Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe His 70 75 Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln Val 90 Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly Val 105 Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu Asp 120 Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp Phe 135 Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser Ala 150 155 Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser Ile 170 Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu Pro 185 Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys Val 200 Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu Glu

215

230

Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cvs Thr

Gln Lys Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala Leu 245 250 255

Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser Gly 260 270 270 Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn Lys

275 280 285 Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg Ala

235

290 295 Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn Leu 305 310 315 Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser Leu 330 Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Glv Ala Ala Ala 340 345 Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr 360 <210> 691 <211> 1216 <212> DNA <213> Homo Sapiens <400> 691 atgetecteg atgtggagee getggageet acaettagea acateatega geagegeage 60 ctgaagtgga tettegtegg gggcaagggt ggtgtgggea agaccacetg cagetgeage 120 ctggcagtcc agctctccaa ggggcgtgag agtgttctga tcatctccac agacccagca 180 cacaacatet cagatgettt tgaccagaag ttetcaaagg tgectaccaa ggtcaaagge 240 tatgacaacc tetttgetat ggagattgac cecageetqq qeqtqqcqqa eqtqeetqac 300 gagttetteg aggaggacaa catgetqaqe atqqqcaaqa aqatqatqca qqagqccatg 360 agogoattto coggoatoga tgaggocatg agotatgoog aggtoatgag gotggtgaag 420 ggcatgaact teteggtggt ggtatttgac acggcaccca cgggccacac cetgaggetg 480 ctcaacttcc ccaccatcgt ggagcgggc ctgggccggc ttatgcagat caagaaccag 540 atcagecett teateteaca gatgtgeaac atgetgggee tggggggaeat gaacgeagae 600 cagetggeet ccaagetgga ggaqacqetq cccqtcatec qetcaqtcaq cqaacaqttc 660 aaggaccotg agcagacaac tttcatctgc gtatgcattg ctgagttcct gtccctgtat 720 gagacagaga ggctgatcca ggagctggcc aagtgcaaga ttgacacaca caatataatt 780 gtcaaccagc tegtetteec egacecegag aagecetgea agatgtgtga ggeeegteac 840 aagatccagg ccaagtatct ggaccagatg gaggacctgt atgaagactt ccacatcgtg 900 aagctgccgc tgttacccca tgaggtgcgg ggggcagaca aggtcaacac cttctcgqcc 960 ctcctcctgg agccctacaa gccccccagt gcccagtagc acagctgcca gccccaaccg 1020 ctgccatttc acactcaccc tccaccetec ccaccecete ggggcagagt ttgcacaaag 1080 teccecccat aatacagggg gagecaettg ggeaggagge agggaggggt ceattececc 1140 tggtgggget ggtggggage tgtagttgee cectacetet cecacetett getetteaat 1200 aaatgatett aaaetg 1216 <210> 692 <211> 1958 <212> DNA <213> Homo Sapiens <400> 692 getgetgege cegeggetee ceagtgeece gagtgeeceg egggeecege gagegggagt 60 gggacccagc cctaggcaga acccaggcgc cgcgcccggg acgcccgcgg agagagccac 120 tecegeceae gteceattte geceetegeg teeggagtee eegtggecaq atetaaccat 180 gagetaccet ggetatecce egeceecagg tggetaccea ceagetgeac eaggtggtgg 240 tecetgggga ggtgetgeet accetectee geccageatg ecceecateg ggetggataa cgtggccacc tatgcgggc agttcaacca ggactatete tegggaatgg cggccaacat 360 gtctgggaca tttggaggag ccaacatgcc caacctgtac cctggggccc ctggggctgg 420 ctacccacca gtgccccctg gcggctttgg gcagcccccc tctgcccage agcctgttcc 480 tecetatggg atgtatecae ecceaggagg aaacecacce tecaggatge ceteatatee 540

600

660

gecataceca ggggcccetg tgccgggcca gcccatgcca ccccccggac agcagccccc

aggggcctac cctgggcagc caccagtgac ctaccctggt cagcctccag tgccactccc

tgggcagcag	cagccagtgc	egagetacce	aggatacccg	gggtctggga	ctgtcacccc	720
cgctgtgccc	ccaacccagt	ttggaageeg	aggcaccatc	actgatgctc	ccggctttga	780
cccctgcga	gatgccgagg	tcctgcggaa	ggccatgaaa	ggcttcggga	cggatgagca	840
ggccatcatt	gactgcctgg	ggagtegete	caacaagcag	cggcagcaga	tectacttte	900
cttcaagacg	gcttacggca	aggatttgat	caaagatctg	aaatctgaac	tgtcaggaaa	960
ctttgagaag	acaatcttgg	ctctgatgaa	gaccccagtc	ctctttgaca	tttatgagat	1020
aaaggaagcc	atcaaggggg	ttggcactga	tgaagcctgc	ctgattgaga	tectegette	1080
ccgcagcaat	gagcacatcc	gagaattaaa	cagageetae	aaagcagaat	tcaaaaagac	1140
cctggaagag	gccattcgaa	gegacacate	agggcacttc	cageggetee	tcatctctct	1200
ctctcaggga	aaccgtgatg	aaagcacaaa	cgtggacatg	tcactcgccc	agagagatgc	1260
ccaggagctg	tatgcggccg	gggagaaccg	cctgggaaca	gacgagtcca	agttcaatgc	1320
ggttctgtgc	teeeggagee	gggcccacct	ggtagcagtt	ttcaatgagt	accagagaat	1380
gacaggccgg	gacattgaga	agagcatctg	ccgggagatg	teeggggaee	tggaggaggg	1440
catgctggcc	gtggtgaaat	gtctcaagaa	taccccagcc	ttctttgcgg	agaggctcaa	1500
caaggccatg	aggggggcag	gaacaaagga	ceggaccetg	attcgcatca	tggtgtctcg	1560
cagcgagacc	gacctcctgg	acatcagatc	agagtataag	cggatgtacg	gcaagtcgct	1620
gtaccacgac	atctcgggag	atacttcagg	ggattaccgg	aagattctgc	tgaagatctg	1680
tggtggcaat	gactgaacag	tgactggtgg	ctcacttctg	cccacctgcc	ggcaacacca	1740
gtgccaggaa	aaggccaaaa	gaatgtctgt	ttctaacaaa	tccacaaata	gccccgagat	1800
tcaccgtcct	agagettagg	cctgtcttcc	acccctcctg	acccgtatag	tgtgccacag	1860
gacctgggtc	ggtctagaac	teteteagga	tgeettttet	accccatccc	tcacagcctc	1920
ttgctgctaa	aatagatgtt	tcatttttct	gaaaaaaa			1958

<210> 693

<211> 505 <212> PRT

<213> Homo Sapiens

<400> 693

Met Ser Tyr Pro Gly Tyr Pro Pro Pro Pro Gly Gly Tyr Pro Pro Ala 5 1.0 Ala Pro Gly Gly Gly Pro Trp Gly Gly Ala Ala Tyr Pro Pro Pro Pro 25 Ser Met Pro Pro Ile Gly Leu Asp Asn Val Ala Thr Tyr Ala Gly Gln 40 Phe Asn Gln Asp Tyr Leu Ser Gly Met Ala Ala Asn Met Ser Gly Thr 55 60 Phe Gly Gly Ala Asn Met Pro Asn Leu Tyr Pro Gly Ala Pro Gly Ala 70 75 Gly Tyr Pro Pro Val Pro Pro Gly Gly Phe Gly Gln Pro Pro Ser Ala 90 85 Gln Gln Pro Val Pro Pro Tyr Gly Met Tyr Pro Pro Pro Gly Gly Asn 105 110 Pro Pro Ser Arg Met Pro Ser Tyr Pro Pro Tyr Pro Gly Ala Pro Val 120 Pro Gly Gln Pro Met Pro Pro Pro Gly Gln Gln Pro Pro Gly Ala Tyr 135 140 Pro Gly Gln Pro Pro Val Thr Tyr Pro Gly Gln Pro Pro Val Pro Leu 150 155 Pro Gly Gln Gln Pro Val Pro Ser Tyr Pro Gly Tyr Pro Gly Ser 165 170 Gly Thr Val Thr Pro Ala Val Pro Pro Thr Gln Phe Gly Ser Arg Gly 185 190 Thr Ile Thr Asp Ala Pro Gly Phe Asp Pro Leu Arg Asp Ala Glu Val 195 200

```
Leu Arg Lys Ala Met Lys Gly Phe Gly Thr Asp Glu Gln Ala Ile Ile
                        215
Asp Cys Leu Gly Ser Arg Ser Asn Lys Gln Arg Gln Gln Ile Leu Leu
                    230
                                        235
Ser Phe Lys Thr Ala Tyr Gly Lys Asp Leu Ile Lys Asp Leu Lys Ser
                                    250
                245
Glu Leu Ser Gly Asn Phe Glu Lys Thr Ile Leu Ala Leu Met Lys Thr
                                265
Pro Val Leu Phe Asp Ile Tyr Glu Ile Lys Glu Ala Ile Lys Gly Val
                            280
Gly Thr Asp Glu Ala Cvs Leu Ile Glu Ile Leu Ala Ser Arg Ser Asn
                        295
                                            300
Glu His Ile Arg Glu Leu Asn Arg Ala Tyr Lys Ala Glu Phe Lys Lys
                    310
                                        315
Thr Leu Glu Glu Ala Ile Arg Ser Asp Thr Ser Gly His Phe Gln Arg
                325
                                    330
Leu Leu Ile Ser Leu Ser Gln Gly Asn Arg Asp Glu Ser Thr Asn Val
            340
                                345
Asp Met Ser Leu Ala Gln Arg Asp Ala Gln Glu Leu Tyr Ala Ala Gly
Glu Asn Arg Leu Gly Thr Asp Glu Ser Lys Phe Asn Ala Val Leu Cys
                        375
                                            380
Ser Arg Ser Arg Ala His Leu Val Ala Val Phe Asn Glu Tyr Gln Arg
                    390
                                         395
Met Thr Gly Arg Asp Ile Glu Lys Ser Ile Cys Arg Glu Met Ser Gly
                                     410
Asp Leu Glu Glu Gly Met Leu Ala Val Val Lys Cys Leu Lys Asn Thr
            420
                                 425
                                                     430
Pro Ala Phe Phe Ala Glu Arg Leu Asn Lys Ala Met Arg Gly Ala Gly
                            440
Thr Lys Asp Arg Thr Leu Ile Arg Ile Met Val Ser Arg Ser Glu Thr
                        455
                                             460
Asp Leu Leu Asp Ile Arg Ser Glu Tyr Lys Arg Met Tyr Gly Lys Ser
                    470
                                        475
Leu Tyr His Asp Ile Ser Gly Asp Thr Ser Gly Asp Tyr Arg Lys Ile
                485
                                     490
Leu Leu Lys Ile Cys Gly Gly Asn Asp
```

<210> 694

<211> 1141

<212> DNA

<213> Homo Sapiens

<400> 694

egeagettqc aaatqqcqtc tccctcqctq qaqcqqccaq aaaaaqqcqc tqqaaaaaqt quatttcqta accaquaqcc quaqccqqqq aaccaqqatq aatcaqaact ccttacqqtt 120 cctgatggtt ggaaggaacc agctttttcc aaagaggaca atcccagagg acttttggag 180 gagagcagtt tegcaacttt gttcccaaaa tacagggaag ettacttgaa agagtgttgg 240 ccattggtgc agaaagcctt aaatgaacat catgttaatg caaccctgga cctgatcgaa ggcaqcatqa ctgtttgtac tacaaaqaaq acttttgatc catatatcat cattagggcc 360 agagatetga taaaactgtt agcaaggagt gttteatttg aacaggeagt acgaattett 420 caggatgatg ttgcatgtga catcattaaa ataggttctt tagtaaggaa taaagagaga 480 tttgtaaaac gaagacaacg gcttattggt cccaaaggat ctacattgaa qqcattggaa 540 ctcttaacta attgttacat tatggttcag ggaaacacag tttcagccat tggacctttt 600

aqtqqcttaa aagaggttag aaaagtagtc cttgatacta tgaagaatat tcatccaatt 660 tataacatta aaagcttaat gattaagaga gagttggcaa aagattctga attacgatca caaagttggg agagattttt gccacagttc aaacacaaaa atgtgaataa acgcaaggaa ccaaagaaaa aaactgttaa gaaagatata cgccattccc accaccacaa ccagaaagtc 840 agatogataa agaattggot agtggtgaat actttttgaa ggcaaatcag aagaaqoqqo 900 agaaaatgaa gcaataaagg ctaaacaagc agaagccatc agtaagaqac aaqaqqaaag 960 aaacaaaqca tttattccac ctaaqqaaaa accaattqtq aaacctaaqq aaqcttctac 1020 tgaaactaaa attgatgtgg ccagcatcaa ggaaaaggtt aagaaagcaa agaataagaa actgggaget ettacagetg aagaaattge acttaagatg gaggeagatg aaaaaaaaaa 1140 1141

<210> 695 <211> 288 <212> PRT

<213> Homo Sapiens

<400> 695

Met Ala Ser Pro Ser Leu Glu Arg Pro Glu Lys Gly Ala Gly Lys Ser 10 Glu Phe Arg Asn Gln Lys Pro Lys Pro Glu Asn Gln Asp Glu Ser Glu 20 25 Leu Leu Thr Val Pro Asp Gly Trp Lys Glu Pro Ala Phe Ser Lys Glu 40 45 Asp Asn Pro Arg Gly Leu Leu Glu Glu Ser Ser Phe Ala Thr Leu Phe 55 Pro Lys Tyr Arg Glu Ala Tyr Leu Lys Glu Cys Trp Pro Leu Val Gln 70 75 Lys Ala Leu Asn Glu His His Val Asn Ala Thr Leu Asp Leu Ile Glu 85 Gly Ser Met Thr Val Cys Thr Thr Lys Lys Thr Phe Asp Pro Tyr Ile 105 110 Ile Ile Arg Ala Arg Asp Leu Ile Lys Leu Leu Ala Arg Ser Val Ser 120 Phe Glu Gln Ala Val Arg Ile Leu Gln Asp Asp Val Ala Cys Asp Ile 135 140 Ile Lys Ile Gly Ser Leu Val Arg Asn Lys Glu Arg Phe Val Lys Arg 150 155 Arg Gln Arg Leu Ile Gly Pro Lys Gly Ser Thr Leu Lys Ala Leu Glu 165 170 Leu Leu Thr Asn Cys Tyr Ile Met Val Gln Gly Asn Thr Val Ser Ala 185 190 Ile Gly Pro Phe Ser Gly Leu Lys Glu Val Arg Lys Val Val Leu Asp 200 Thr Met Lys Asn Ile His Pro Ile Tyr Asn Ile Lys Ser Leu Met Ile 215 220 Lys Arg Glu Leu Ala Lys Asp Ser Glu Leu Arg Ser Gln Ser Trp Glu 230 235 Arg Phe Leu Pro Gln Phe Lys His Lys Asn Val Asn Lys Arg Lys Glu 245 250 Pro Lys Lys Lys Thr Val Lys Lys Asp Ile Arg His Ser His His His 265 Asn Gln Lys Val Arg Ser Ile Lys Asn Trp Leu Val Val Asn Thr Phe 280

<210> 696

```
<211> 1008
      <212> DNA
      <213> Homo Sapiens
      <400> 696
agcaggctag gaagactgca tcagttctta gtaaagatga tgtggcacct gaaagtggtg
                                                                       60
atactacagt gaagaaacct gaatcaaaga aggaacagac cccagagcat gggaagaaaa
                                                                      120
aacgtggcag aggaaaagcc caagttaaag caacaaatga atccgaagac gaaatcccac
                                                                      180
agetggtace aataggaaag aagaeteeag etaatgaaaa agtagagatt caaaaacatg
                                                                      240
ccacagggaa gaagtctcca gcaaagagtc ctaatcccag cacacctcgt gggaagaaaa
                                                                      300
agaaaggett tgccagcate tgagacceca aaagetgcag agtetgagae eecagggaaa
                                                                      360
ageccagaga agaagectaa aatcaaagaa gaggeagtga aggaaaaaag teettegetg
                                                                      420
gggaaaaaag atgcgagaca gactcccaaa aaaqccaqaq qccaaqtttt tcaccattcc
                                                                      480
tagtaaatct gtgagaaaag cttcccacac ccccaaaaaa tggcccaaaa aacccaaagt
                                                                      540
accocagteg acctaaagte agtgatteaa etggaaggaa accteaatge tqeeteeaga
                                                                      600
getttttgga aatactcaga teetggeege etttgtaace ttetetaaac gteaggeetg
                                                                      660
gacttaaaag attttttaaa acctccataa gtagtccagg ggcggtggct cacgcctgta
                                                                      720
ateccageae tttgggagge egaggeagge ggateacaag gteaacgaga tegagaccat
                                                                      780
cctggccaac atggtgaaac cctgtctgta ccaaaaatac aaaaattaat tgggcatggt
                                                                      840
ggtggacacc tgtaatccca gctactaggg aggctgaggc aggagaattg cttqaacctq
                                                                      900
ggaggeggag gttgcagtga gccactgcac tccaqcctga tqacaqaqca aqactcagtc
                                                                      960
tcaaaaataa ataaaaataa taaaacctcc ataagtaatc ctgaaaaa
                                                                     1008
     <210> 697
     <211> 685
     <212> DNA
      <213> Homo Sapiens
      <400> 697
acgagetgea etceageetg ggegacagag ggaaacteea teteaaaaaa aaaaanaaaa
                                                                       60
aaaaaanaaa aagaaaaaag anaatgccca gcgcggtggc taatgcctgt aaccctagtg
                                                                      120
agacagccaa gtaaaaacgg ctcccaagac aatctacaag cactgggagg atggggtgca
                                                                      180
gcaccaaaat gttcacacca tttgcagagg ggaacagcct ggcccctgct gttccaggat
                                                                      240
agtaaccagg aattcagttg gtgagatgga cagcctgtta gcaggactcc atctcacttt
                                                                      300
gctgtgttgt tctttttccc ttttgcccaa taaattngta acccctcacc tttcaaagtg
                                                                      360
totgegtgcc taatetttcc etgecatgtg accagaacce ggttttgttt acaacaccag
                                                                      420
cactttggga ggcgaagatg ggctgattgc ttgagctcag gggtttaaga acagcctggg
                                                                      480
caacatagtg aaaccctagt ttttaccaaa aatacgaaaa ttaaccaggc atgcctgtta
                                                                      540
teccagetga ggeacaagaa teeettgaac eeaggaggen gaannetaat tnnaaceega
                                                                      600
aaatttgene eeactggeee eeccaggegg aagetagtga geegagattg egecactgea
                                                                      660
cccctgagac gctgtntcaa aaaaa
                                                                      685
      <210> 698
      <211> 1205
      <212> DNA
      <213> Homo Sapiens
      <400> 698
ggcacgaggg tgtaggccgc tgcaggccnc catganccgg cttccggatg actacgaccc
                                                                       60
ctacgcggtt gaagagccta gcgacgagga gccggctttg agcagctctg aggatgaagt
                                                                      120
ggatgtgett ttacatggaa eteetgacca aaaacgaaaa eteatcagag aatgtettac
                                                                      180
cggagaaagt gaatcatcta gtgaagatga atttgaaaag gagatggaag ctgaattaaa
                                                                      240
ttctaccatg aaaacaatgg aggacaagtt atcctctctq qqaactqqat cttcctcagg
                                                                      300
aaatggaaaa gttgcaacag ctccgacaag gtactacgat gatatatatt ttgattctga
                                                                      360
```

ttccgaggat gaagacagag cagtacaggt gaccaagaaa aaaaagaaga aacaacacaa

```
gattecaaca aatgacgaat tactgtntga teetgaaaaa gataacagag atcaggeetg
                                                                     480
ggttgatgca cagagaaggg gttaccatgg tttgggacca cagagatcac gtcaacaaca
                                                                     540
qcctqttcca aatagtgatq CtgtCttgan ttqtcctqcc tqcatqacca cactttqcct
                                                                     600
tgattgccaa aggcatgant catacaaaac tcaatataga gcaatgtttg taatgaattg
                                                                     660
ttctattaac aaagaggagg ttctaagata taaagcctca gagaacagga agaaaaggcg
                                                                     720
ggtccataag aagatgaggt ctaaccggga agatgctgcc gagaaggcaq agacaqatqt
                                                                     780
ggaagaaatc tatcacccag tcatgtgcac tgaatgttcc actgaagtgg cagtctacga
                                                                     840
caaggatgaa gtctttcatt ttttcaatgt tttagcaagc cattcctaaa cagcccaact
                                                                     900
ggcatttaat tacccaatac tgtatataag gcaaatatgg acagttactt teetettgee
                                                                     960
tgttcatatc cttcagtgac attgaggaag cagtgtttct ctttttaaag qaqaataqtt
                                                                   1020
gtcaacettc atteatetet tacatetete acceteteet ttttttttte tttgatttte
                                                                   1080
coccttattq atqqqactqa tattcattct qtttttqatq aacatttqqa aactqtcqqq
                                                                   1140
1200
aaaaa
                                                                   1205
     <210> 699
      <211> 1427
      <212> DNA
      <213> Homo Sapiens
      <400> 699
anannnctqq aqccqcqcc ctcqcaqqtc qacactaqtq qatccaaaqa attcqqcacq
                                                                     60
agcagtggta gcaaatgaag ccaaactgta tcttgaaaaa cctgttgttc ctttaaatat
                                                                     120
gatgttgcca caagctgcat tggagactca ttgcagtaat atttccaatg tgccacctac
                                                                     180
aagagagata cttcaagtct ttcttactga tgtacacatg aaggaagtaa ttcagcagtt
                                                                     240
cattgatgtc ctgagtgtag cagtcaaqaa acqtgtcttq tqtttaccta qqqatqaaaa
                                                                     300
cctgacagca aatgaagttt tgaaaacgtg tgataggaaa gcaaatgttg caatcctgtt
                                                                     360
ttctgggggc attgattcca tggttattgc aaccettgct gaccgtcata ttcctttaga
                                                                     420
tgaaccaatt gatcttctta atgtagcttt catagctgaa gaaaagacca tgccaactac
                                                                     480
ctttaacaga gaagggaata aacagaaaaa taaatgtgaa ataccttcag aagaattctc
                                                                     540
taaagatgtt gctgctgctg ctgctgacag tcctaataaa catqtcaqtq taccaqatcq
                                                                     600
aatcacagga agggcgggac taaaggaact acaagctgtt agcccttccc qaatttqqaa
                                                                     660
ttttgttgaa attaatgttt ctatggaaga actgcagaaa ttaagaagaa ctcgaatatg
                                                                     720
tcacttaatt cggccattgg atacagtttt ggatgatagc attggctgtg cagtctggtt
                                                                     780
tgcttctaga ggaattggtt ggttagtggc ccaggaagga gtgaaatcct atcagagcaa
                                                                     840
tgcaaaggta gttctcactg gaattggtgc agatgagcaa cttgcaggtt attctcqtca
                                                                     900
tegtgteege ttteagtege atgggetgga aggattgaat aaggaaataa tqatqqaact
                                                                     960
qqqtcqaatt tcttctagaa atcttggtcg tgatgacaga gttattggtg atcatggaaa
                                                                    1020
agaagcaaga tttcctttcc tggatgaaaa tgttgtctcc tttctaaatt ctctqccqat
                                                                    1080
ttggqaaaaa gcaaacttga ctttaccccq aqqaattqqt qaaaaattac ttttacqcct
                                                                    1140
tgcagctgtg gaacttggtc ttacagcctc tgctcttctc gccaaacggg ccatgcagtt
                                                                    1200
tggatcaaga attgcaaaaa tggaaaaaat taatgaaaag gcatctgata aatgtqqacq
                                                                    1260
gctccaaatc atgtccttag aaaatctttc tattgaaaag gagactaaat tgtaatgtga
                                                                    1320
ttcacaatgt aacaatataa aaataagttt ttatataatt atataaaagt aagatactct
                                                                    1380
gctqctttac tattqtataa tataqtaqtt ttaaaqttca aaaaaaa
                                                                    1427
      <210> 700
      <211> 1967
      <212> DNA
```

<400> 700

```
ggcacgaggg aaagaggtac gaaatgatqa aqqaaaaqta attcqqttcc attqtaaatt
                                                                       60
atgcgagtgc agctttaatg atcccaatgc taaggagatg cacttaaaag ggcgaagaca
                                                                      120
cagacttcaa tataaaaaaa aagtaaatcc agatttgcaa gtagaagtaa agcctagtat
```

<213> Homo Sapiens

```
tegagcaaga aagattcaag aagagaaaat gaggaagcaa atgcagaaqq aqqaqtactq
qcqaaqacga gaagaagagg agcgttggag aatggaaatg agacgttatg aagaggacat
                                                                  300
gtactggagg agaatggagg aagaacaaca tcattgggat gatcgccgcc gaatgccaga
                                                                  360
tggaggttat cetcatggtc etccaggecc attaggeett etgggagtec gaccaggeat
                                                                  420
geotectcag cotcagggge otgoaccott acgtogtoct gactcatctg atgaccqttt
                                                                  480
ctgggagtcc gaccaggcat gcctcctcag cctcaqqqqc ctqcaccctt acqtcqtcct
                                                                  540
gactcatctg atgaccgtta tgtaatgaca aaacatqcca ccatttatcc aactgaagag
                                                                  600
gagttacagg cagttcagaa aattgtttct attactgaac gtgctttaaa actcgtttca
                                                                  660
gacagtttgt ctgaacatga gaagaacaag aacaaagagg gagatqataa qaaaqaqqa
                                                                  720
ggtaaagaca gagctttgaa aggagttttg cgagtgggag tatttgcaaa agggattact
                                                                  780
tctcccqqaq ataqaaatqt caaccttqtt ttqctqtqtc aqaqaaacct tcaaaqacat
                                                                  840
tattaagccg tattgcagaa aacctaccca aacagcttgc tgttataagc cctgagaagt
                                                                  900
atgacataaa atgtgctgta tctgaagcgg caataatttt gaattcatgt gtggaaccca
                                                                  960
aaatgcaagt cactatcaca ctgacatctc caattattcg agaaqagaac atgaqqqaaq
                                                                 1020
gagatgtaac ctcgggtatg gtgaaagacc caccggacgt cttggacagg caaaaatgcc
                                                                 1080
ttgacgetet ggetgeteta egecacgeta agtggtteca ggetagaget aatggtetge
                                                                1140
agtectgtgt gattateata egeattette gagacetetg teagegagtt ceaacttggt
                                                                 1200
ctgattttcc aagctgggct atggagttac tagtagagaa agcaatcagc agtgcttcta
                                                                 1260
gecetcagag ceetggggat geactgagaa qaqtttttqa atqeatttet teagggatta
                                                                 1320
ttettaaagg tagteetgga ettetggate ettgtgaaaa ggateeettt gatacettgg
                                                                 1380
caacaatgac tgaccagcag cgtgaagaca tcacatccag tgcacagttt gcattgagac
                                                                1440
teettgeatt eegecagata cacaaagtte taggeatgga teeattaceg caaatgagee
                                                                1500
aacgttttaa catccacaac aacaggaaac gaagaagaga tagtgatgga gttgatggat
                                                                 1560
ttgaagctga ggggaaaaaa gacaaaaaaq attatqataa cttttaaaaa qtqtctgtaa
                                                                 1620
atcttcagtg ttaaaaaaac agatgcccat ttgttggctg tttttcattc ataataatgt
                                                                 1680
ctacattgaa aaatttatca agaatttaaa ggatttcatg gaagaaccaa gtttttctat
                                                                 1740
1800
atgtqctccg actaggggga aaacagtagt tecgattttt teccattatt tttattttat
                                                                 1860
tttctggttg ccctagette cccccctatt tttgtgtett ttattaacta gtgcattgte
                                                                 1920
1967
```

<210> 701 <211> 3423 <212> DNA

<213> Homo Sapiens

<400> 701

ggtgaagaat gaaatcgtgg cqaatgtggg qaaaaqaqaa atcttgcaca atactgagaa 60 agaacaacac acagaggaca cagtgaagga ttgtgtggac atagaggtat tcactgctgg 120 tgagaatacc gaggaccaga aatcctctga agacactgcc ccattcctag gaaccttagc 180 aggtgctacc tatgaggaac aggttcaaag ccaaattctt gagagegett ctctccctqa 240 aaacacagca caggttgagt caaatgaqqt catqqqtqca ccaqatqaca qqaccagaac 300 tccccttgag ccatccaact gttggagtga cttagatggt gggagccaca cagagaatgt 360 gggagaggca geggtgacte teceettgag ceatecaact gttggagtga ettagatggt 420 gggagecaca cagagaatgt gggagaggca gcagtgactc aggttgaaga gcaggcaggc 480 acagtggcct cgtgtccttt agggcatagt gatgacacag tttatcatga tgacaaatgt 540 atggtagagg tcccccaaga gttagagaca agcacagggc atagtttgga gaaagaattc 600 accaaccagg aagcagctga gcccaaggag gttccagcgc acagtacaga agtaggtagg 660 gatcacaacg aagaagagg tgaagaaaca ggattaaggg acgagaaacc aatcaagaca 720 gaatteetgg ttetecagea ggaactgagg geaactgtea ggaagegaea ggtecaagta 780 cagtagacac tcaaaatgaa cccttagata tgaaagagcc cgatgaagaa aagagtgacc 840 900 aaaaaaagcg ggttctaggg cgccgggcgc tcgggcctcg gccatggctc acaggccgaa aaggactttt cggcagcgcg cggctgattc cagcgacagc gatqqcqccq aqqaqtcqcc 1020 tgctgagcct ggggcgccga gggaacttcc ggtcccgggt tctgcggagg aagagccgcc 1080

```
ctctggagga ggccgcgcgc aggtggcggg actgccccac cgggttcggg gccctcgtgg
                                                                   1140
ccggggccgg gtctgggcga gctcccggcg tgccaccaaa gcggctcccc gcgcgqacqa
                                                                   1200
aggeteagaa tecagaacee ttgatgtgte cacagatgaa gaggataaaa tacateacte
                                                                   1260
ctcagaaagt aaggatgatc agggtttgtc ttctgacagt tctagctctc ttggaqaaaa
                                                                   1320
agaactttca tcaacagtta agatcccaga tgcagctttt attcaggcag cccgcagaaa
                                                                   1380
acqttqaatt qqccaqqqcc caaqatqact atatttcttt qqatqtacaa catacctcct
                                                                   1440
ccatctctgt aagcagaaat gaagaaacaa gtgaagaaag tcaggaagat gaaaaqcaaq
                                                                   1500
atacttqqga acaacagcaa atgaggaaag cagttaaaat catagaggaa agagacatag
                                                                   1560
1620
cgccagtaaa tttagaaatt ataaagaagc aattaaatac tagattaaca ttactacagg
aaactcaccg ctcacacctg agggagtatg aaaaatacgt acaagatgte aaaaqctcaa
                                                                   1740
agagtaccat ccagaaccta gagagttcat caaatcaagc tctaaattqt aaattctata
                                                                   1800
aaagcatgaa aatttatgtg gaaaatttaa ttgactgcct taatgaaaag attatcaaca
                                                                   1860
tccaagaaat agaatcatcc atgcatgcac tccttttaaa acaagctatg acctttatga
                                                                   1920
aacgcaggca agatgaatta aaacatgaat caacgtattt acaacagtta tcacgcaaaq
                                                                   1980
atgagacatc cacaagtgga aacttctcag tagatgaaaa aactcagtqq attttaqaaq
agattgaatc tcgaaggaca aaaagaagac aagcaagggt qctttctqqq aattgtaacc
                                                                   2100
atcaggaagg aacatctagt gatgatgaac tgccttcagc agagatgatt gacttccaaa
                                                                   2160
aaagccaagg tgacatttta cagaaacaga agaaagtttt tgaagaagtg caaqatqatt
                                                                   2220
tttqtaacat ccagaatatt ttgttgaaat ttcagcaatg gcgagaaaag tttcctgact
                                                                   2280
cctattatga agctttcatt agtttatgca taccaaaqct tttaaatccc ctaatacqaq
                                                                  2340
ttcagttgat tgattggaat cotottaagt tggaatccac aggtttaaaa gagatgccat
                                                                   2400
ggttcaaatc tgtagaagaa tttatggata gcagtgtaga agattcaaag aaggaaaqta
                                                                   2460
gttcagataa aaaagtcttg tctgcaatca tcaacaaaac aattattccc cgacttacag
                                                                   2520
actitigtaga attoctitigg gatoctitigt caacotcaca gacaacaagt tiaataacac
                                                                   2580
attgcagagt gattcttgaa gaacattcca cttgtgaaaa tgaagttagt aaaaqcagac
                                                                   2640
aggatttact taaatccatt gtttcaagaa tgaaaaaggc agtagaagat gatgttttta
                                                                   2700
tteetetgta tecaaagagt getgtagaaa acaaaacate aceteattea aagttecaag
                                                                   2760
aaagacagtt ctggtcaggc ctaaagctct tccgcaatat tcttctttgg aatggactcc
                                                                   2820
ttacaqatqa caccttqcaa qaactaqqac taqqqaaqct qctaaatcqt taccttatta
                                                                   2880
tagcacttet caatgccaca cetgggecag atgtggttaa aaagtgcaac caggtagcag
                                                                   2940
catgictacc agaaaaatgg titgaaaatt cigccatgag gacatctatt ccacaqctag
                                                                   3000
aaaacttcat tcagttttta ttgcagtctg cacataaatt atctagaagt gaattcaggg
                                                                   3060
atqaaqtcga agaaataatt cttattttgg tgaaaataaa agctttgaat caagcagaat
                                                                   3120
ccttcatagg agagcatcac ctagaccatc ttaaatcact aattaaagaa gattgaataa
                                                                   3180
actttattgg aaaatgctaa aattttaata tagttacact cagttccttt gtttgagaag
                                                                   3240
aagetggtge etetetete tttatteeet gtaatagaag gtaggatttg aaaaaaagea
                                                                   3300
ggactccacc tetgtattec ecegtgettt accttetgge atcatgaaaa getgecatga
                                                                   3360
ttctgtggtg ttctaaggaa ttaaatgcac tggagcttta agagctcaac gtgtttccct
                                                                   3420
ttg
                                                                   3423
```

<210> 702

<211> 1106

<212> DNA

<213> Homo Sapiens

<400> 702

```
ggcacgagca gagacgctgc aaattgcttg tggacggtgt aggccgctgc aqqccaccat
                                                                       60
gaaaccgget teeggatgae tacgaeceet acgeggttga aqaqeetaqe qacqaqqaqe
                                                                       120
eggetttgag eagetetgag gatgaagtgg atgtgetttt acatggaact eetgaccaaa
                                                                      180
aacgaaaact catcagagaa tgtcttaccg gagaaagtga atcatctagt gaaqatqaat
                                                                      240
ttgaaaagga gatggaagct gaattaaatt ctaccatgaa aacaatggag gacaagttat
                                                                       300
cottetetggg aactggatet teeteaggaa atggaaaagt tqcaacaqct ccqacaaqqt
                                                                       360
actacgatga tatatatttt gattctgatt ccgaggatga agacagagca gtacaggtga
                                                                      420
ccaaqaaaaa aaagaagaaa caacacaaga ttccaacaaa tgacgaatta ctgtatgatc
                                                                      480
```

540

600

660

ctgaaaaaga	taacagagat	caggcctggg	ttgatgcaca	gagaaggggt	taccatggtt	540
tgggaccaca	gagatcacgt	caacaacagc	ctgttccaaa	tagtgatgct	gtcttgaatt	600
	catgaccaca					660
	aatgtttgtt					720
	naacaqqaag					780
	naaggcagaa					840
	aaattggagt					900
	taaacngccc					960
	cttncccctt					1020
	gggaaaaaat					1080
	gaattncccc			caacccccc	CCCCCITCCCC	1106
	gaacencooo	occincy				1100
<210	> 703					
<211:	> 1095					
<212:	> DNA					
<213	> Homo Sapie	ens				
	500					
	> 703 cttcctcttc	ttettettet	tetteetett	cttcctagct	teetteacca	60
	gctcctggac					120
	cctagcttca					180
	tgaatccact					240
	aaaaaataat					300
	cttgaattac					360
	ggccttccaa					420
	accagteett					480
	gtattettet					540
	ctaacttctg					600
	atttcctcat					660
	tatacttctc					720
	aatttcattt					780
	ccttaacttt					840
	aaatttatct					900
						960
	nctaatcent					
	ctatcttccc					1020 1080
	ttaataaaag	ncctaanagg	grtaaaagaa	annaaceeee	engttttgga	
attnangggt	LLaaa					1095
<210	> 704					
<211	> 1968					
<212	> DNA					
<213	> Homo Sapi	ens				
-400	> 704					
		cacqtqqtqc	cactactact	qcctcccqct	cgccctgaac	60
					tgacaaaacc	120
					cgcttccgga	180
					tgagttgacg	240
					ccatgctgga	300
					tttcaatctt	360
					tccaggtgta	420
						-20

actgttgagg aggctgtgga gcaaattgac attggtggag taaccttact gagagctgca

gccaaaaacc acgctcgagt gacagtggtg tgtgaaccag aggactatgt ggtggtgtcc

acggagatgc agagctccga gagtaaggac acctccttgg agactagacg ccagttagcc

ttgaaggcat tcactcatac ggcacaatat gatgaagcaa tttcagatta tttcaggaaa

120

180

240

300

```
cagtacagca aaggcgtatc tcagatgccc ttgagatatg gaatgaaccc acatcagacc
                                                                      720
cctgcccagc tgtacacact gcagcccaag cttcccatca cagttctaaa tggagccct
                                                                      780
ggatttataa acttgtgcga tgctttgaac gcctggcagc tggtgaagga actcaaggag
                                                                      840
getttaggta ttccageege tgeetettte aaacatgtea geecageagg tgetgetgtt
                                                                      900
ggaattccac tcagtgaaga tgaggccaaa gtctgcatgg tttatgatct ctataaaacc
                                                                      960
ctcacaccca tctcagcggc atatgcaaga gcaagagggg ctgataggat gtcttcattt
                                                                     1020
ggtgattttg ttgcattgtc cgatgtttgt qatqtaccaa ctqcaaaaat tatttccaga
                                                                     1080
gaagtatctg atggtataat tgccccagga tatgaagaag aagccttgac aatactttcc
                                                                     1140
aaaaagaaaa atggaaacta ttgtgtcctt cagatggacc aatcttacaa accagatgaa
                                                                     1200
aatgaagtto gaactotott tggtottoat ttaagcoaga agagaaataa tggtgtogto
                                                                    1260
gacaaqtcat tatttagcaa tgttgttacc aaaaataaag atttgccaga gtctgccctc
                                                                    1320
cgagacetca tegtagecae cattgetgte aagtacaete agtetaaete tgtgtgetae
                                                                     1380
gccaagaacg ggcaggttat cggcattgga gcaggacagc agtctcgtat acactgcact
cgccttgcag gagataaggc aaactattgg tggcttagac accatccaca aqtqctttcg
                                                                    1500
atgaagttta aaacaggagt gaagagagca gaaateteca atgecatega teaatatgtg
                                                                    1560
actggaacca ttggcgagga tgaagatttg ataaagtgga aggcactgtt tgaggaagtc
                                                                     1620
cctgagttac tcactgaggc agagaagaag gaatgggttg agaaactgac tgaagtttct
                                                                     1680
atcagetetg atgeettett ecettteega gataacgtag acagagetaa aaggagtggt
                                                                     1740
gtggcgtaca ttgcggctcc ctccggttct gctgctgaca aagttgtgat tgaggcctgc
                                                                     1800
gacgaactgg gaatcatcct cgctcatacg aaccttcggc tcttccacca ctgatttac
                                                                    1860
cacacactgt tttttggctt gcttatgtgt aggtgaacag tcacgcctga aactttgagg
                                                                    1920
ataacttttt aaaaaaataa aacagtatct cttaatcact ggaaaaaa
                                                                     1968
     <210> 705
     <211> 800
      <212> DNA
      <213> Homo Sapiens
      <400> 705
cctgcaggtc gacactaagt gggatccaaa gaattcggca cgagaaaaga agaagactaa
                                                                       60
gaataaaaag aataaagact caaaagaaqa ccaaqtccca tatqtqqtaq aaaaggaaga
                                                                      120
gcagttgagg aaagaacaag caaatccaca ctcagtcagt agacttataa aagatgatgc
                                                                      180
aagtgatgtt caagaggatt ctgcaatgga agacaagttc tatagcctgg atgaattqca
                                                                      240
tattetggae atgatagage agggeteage tggeaaagta actacagaet atggagaaae
                                                                      300
tgaaaaggaa aggcttgctc gtcaaaggca gctttataaa ttgcactatc agtgtgaaga
tttcaaaaga cagttgagaa cagtgacttt tcggtggcaa gaaaaccaaa tgcagattaa
                                                                      420
aaagaaagac aaaattatcg catctcttaa tcaacaagtt gcttttggaa tcaataaggt
                                                                      480
ttccaaatta cagcgtcaaa tccatgctaa agataatgaa atcaagaacc ttaaaqaqca
                                                                      540
actttctatg aaaagatctc agtgggaaat ggaaaaacat aatctgggaa agcacaatga
                                                                      600
aaacatacgt aagcaaactg aacgcagaaa ctagcagagc tttaacagcc gaaggtgtan
                                                                      660
ttettacagt gtegtanggg antttgggtt tgeeteatee tagageaaga etgaaaagga
                                                                      720
atgtcccaat cagcntgcca agggtgaccc acatggganc caagcaacct agaaancact
                                                                      780
tcaatttaaa gggctgcggg
                                                                      800
      <210> 706
      <211> 487
      <212> DNA
      <213> Homo Sapiens
      <400> 706
```

caaaggaagc tcagtttttc ttttattatg agctgcttgt ntgagtggtg taaaattatg

tgctcttcaa tatagtgcta aagaagccag ctaattttat caaagcagca gccaaagaag

tcaqqacaaa tcttcaggac ttgtgaaatg aactgaaaga gcttgaagca gatggaattt

taatagttac actatatatg ctcttagtag gtttttttct tgtagtggaa acataactgt

tagcatattt cttaggatgt tttttcttgt ctttttaaat tcttatttca ctcatccttt

actctcccct	caagtattct	acactttaat	ttcctgaaat	aaatttaagg	aaaagggaaa	360
tagtaaagaa	gtaggaatgg	gtgcagcaca	ccagcatggc	acatgaatac	acatgtaact	420
aacctgcaca	ttgtgcacat	gtaccctaaa	acttaaagta	taataataat	aaaaaaaaa	480
aaaaaaa						487

<210> 707 <211> 3599 <212> DNA

<213> Homo Sapiens

<400> 707 aaggaggagc gggccgtgga ggcttcgccg cctaggtact gctataacca gaatttggta 60 taaaaaggat ttacttgttg gggccctctt gataaaaaga gatgtggggg gattctcgac 120 ctqctaacag aactggacct tttcgtggga gccaagaaga aaggtttgct cccgggtgga 180 acagggatta tectecteet eccettaaga gteatgetea aqaqaqaeac tetggeaact 240 ttcctqqcaq aqattcactt ccctttqatt tccaqqqqca ttcqqqqcct ccttttqcaa 300 atgtagagga gcattettte agetatggag etagagaegg accgeatggt gactategag 360 gaggggaggg acctggacat gatttcaggg ggggagattt ttcgtcttct gatttccaga 420 gcagagattc atcacagttg gacttcaggg gtagggacat acattctggg gattttcggg 480 atagagaagg accacctatg gactataggg gtggagatgg tacttctatg gattatagag 540 gtagggaggc acctcatatg aactacagag acagggatgc tcacgctgtt gacttcagag 600 gtagggatgc tectecatet gaetteaggg geeggggeac ttatgattta gattttagag 660 gccgggatgg atcccatgca gattttaggg gaagggattt atcagatttg gattttaggg 720 ccaqaqaaca gtcccgttct gattttagga atagagatgt atctgatttq gactttagag 780 acaaagacgg aacacaagta gactttagag gccgaggttc aggtactact gatctagact 840 ttaqqqacaq qqatacqcca cattcaqatt tcaqaqqtaq acaccqatct aggactgatc 900 aggattttag gggcagagag atgggatctt gtatggaatt taaagatagg gagatgccc 960 ctgtggatcc aaatattttg gattacattc agccctctac acaagataga gaacattctg 1020 gtatgaatgt gaacaggaga gaagaatcca cacacgacca tacgatagaa aggcctgctt 1080 ttggcattca gaagggagaa tttgagcatt cagaaacaag agaagqaqaa acacaagqtq 1140 tageetttga acatgagtet ccagcagaet ttcagaacaq ccaaaqteca qttcaaqaee 1200 aagataagtc acagctttct ggacgtgaag agcagagttc agatgctggt ctgtttaaag 1260 aagaaggegg tetggaettt ettgggegge aagacacega ttacagaage atggagtace 1320 gtgatgtgga tcataggctg ccaggaagcc agatgtttgg ctatggccag agcaagtctt 1380 ttccagaggg caaaactgcc cgagatgccc aacgggacct tcaggatcaa qattataqqa 1440 ccggcccaag tgaggagaaa cccagcaggc ttattcgatt aagtggggta cctqaaqatq 1500 ccacaaaaga agagattett aatgetttte ggacteetga tggcatgeet gtaaagaact 1560 tgcagttgaa ggagtataac acaggttacq actatqqcta tqtctqcqtq qaqttttcac 1620 tettggaaga tgccategga tgcatggagg ccaaccaggg aactetaatg atccaggaca 1680 aagaagttac cctggagtat gtatcaagcc tggatttttg gtactgcaaa cqatqtaagg 1740 caaacattgg tgggcaccga tcttcctgtt cattctgcaa gaacccaaga gaagtgacag 1800 aggocaagca agaattaata acctaccoto agcotoagaa aacatocata coaqoaccat 1860 tggaaaaaca gcccaaccag cccctaagac cagctgataa ggaacctgaa cccaggaaga 1920 gggaagaagg ccaagagtca cgcttaggac atcaaaagag agaagcagaa aggtatctgc 1980 ctectteteg aagggaaggg ccaactttee gaagagaceg agagagggag teatggtetg 2040 gagagacacg ccaggatgga gagagcaaaa ctatcatgct aaagcgtatc tatcgttcca 2100 caccacctga ggtgatagtg gaagtgctgg agccctatgt ccgccttact actgccaacg 2160 teegtateat caagaacaga acaggeeeta tqqqqcatae ctatqqettt attqaeeteq 2220 actoccatgt ggaagotott cgtgtggtga agatottaca gaacottgat ccgccattta 2280 gcattgatgg gaagatggta gctgtaaacc tggccactgg aaaacgaaga aatgattctg 2340 gggaccattc tgaccacatg cattactatc agggtaaaaa atatttccga gataggaggg 2400 qaqqtqqcag aaattcagac tggtcttcag atacaaatcg acaaggacaa cagtcatcat 2460 ctgactgcta catatatgat totgctagtg gctactatta tgaccccttg gcaggaactt 2520 attatgaccc caatacccag caagaagtct atgtgcccca ggatcctgga ttacctgagg 2580

2640

aagaagagat caaggaaaaa aaacccacca gtcaaggaaa gtcaagtagc aagaaggaaa

```
tgtctaaaag agatggcaag gagaaaaaag acagaggagt gacgaggttt caggaaaatg
                                                                 2700
ccagtgaagg gaaggcccct gcagaagacg totttaagaa gcccctgcct cctactqtqa
                                                                 2760
agaaggaaga gagtccccct ccacctaaag tggtaaaccc actgatcggc ctcttgggtg
                                                                 2820
aatatggagg agacagtgac tatgaggagg aagaagagga ggaacagacc cctccccac
                                                                 2880
agccccgcac agcacagccc cagaagcgag aggagcaaac caagaaggag aatqaaqaag
                                                                 2940
acaaactcac tgactggaat aaactggctt gtctgctttg cagaaggcag tttcccaata
                                                                 3000
aagaagttet gatcaaacac cagcagetqt cagacetqca caaqcaaaac etggaaatce
                                                                 3060
accggaagat aaaacagtot gagcaggagc tagcctatot ggaaaggaga gaacgagagg
                                                                 3120
gaaagtttaa aggaagagga aatgatcgca gggaaaagct ccagtctttt gactctccag
                                                                 3180
aaaggaaacg gattaagtac tecagggaaa etgacagtga tegtaaactt qttqataaag
aagatatega cactageage aaaggagget qtqtecaaca qqetactqqe tqqaqqaaag
                                                                 3300
ggacaggect gggatatgge cateetggat tggetteate agaggagget gaaggeegga
                                                                 3360
tgaggggccc cagtgttgga gcctcaggaa gaaccagcaa aagacagtcc aacgagactt
                                                                 3420
atcgagatgc tgttcgaaga gtcatgtttg ctcgatataa agaactcgat taaqaaagga
                                                                 3480
3540
actgttcttg ctgctagaac ttttttaaat aaactttttt tcaatgtgat taaaaaaaa
                                                                 3599
```

<210> 708 <211> 1123

<212> PRT

<213> Homo Sapiens

245

<400> 708

Met Trp Gly Asp Ser Arg Pro Ala Asn Arg Thr Gly Pro Phe Arg Gly 10 Ser Gln Glu Glu Arg Phe Ala Pro Gly Trp Asn Arg Asp Tyr Pro Pro 20 25 30 Pro Pro Leu Lys Ser His Ala Gln Glu Arg His Ser Gly Asn Phe Pro Gly Arg Asp Ser Leu Pro Phe Asp Phe Gln Gly His Ser Gly Pro Pro 55 Phe Ala Asn Val Glu Glu His Ser Phe Ser Tyr Gly Ala Arg Asp Gly 70 75 Pro His Gly Asp Tyr Arg Gly Glu Gly Pro Gly His Asp Phe Arg Gly Gly Asp Phe Ser Ser Ser Asp Phe Gln Ser Arg Asp Ser Ser Gln 105 Leu Asp Phe Arg Gly Arg Asp Ile His Ser Gly Asp Phe Arg Asp Arg 120 Glu Gly Pro Pro Met Asp Tyr Arg Gly Gly Asp Gly Thr Ser Met Asp 135 140 Tyr Arg Gly Arg Glu Ala Pro His Met Asn Tyr Arg Asp Arg Asp Ala 150 155 His Ala Val Asp Phe Arg Gly Arg Asp Ala Pro Pro Ser Asp Phe Arg 165 170 Gly Arg Gly Thr Tyr Asp Leu Asp Phe Arg Gly Arg Asp Gly Ser His 185 Ala Asp Phe Arg Gly Arg Asp Leu Ser Asp Leu Asp Phe Arg Ala Arg 200 Glu Gln Ser Arg Ser Asp Phe Arg Asn Arg Asp Val Ser Asp Leu Asp 215 Phe Arg Asp Lys Asp Gly Thr Gln Val Asp Phe Arg Gly Arg Gly Ser 230 235 Gly Thr Thr Asp Leu Asp Phe Arg Asp Arg Asp Thr Pro His Ser Asp .060700

WO 99/04265 PCT/US98/14679

Phe Arg Gly Arg His Arg Ser Arg Thr Asp Gln Asp Phe Arg Gly Arg 265 Glu Met Gly Ser Cys Met Glu Phe Lys Asp Arg Glu Met Pro Pro Val 280 Asp Pro Asn Ile Leu Asp Tyr Ile Gln Pro Ser Thr Gln Asp Arg Glu 295 300 His Ser Gly Met Asn Val Asn Arg Arg Glu Glu Ser Thr His Asp His 310 315 Thr Ile Glu Arg Pro Ala Phe Gly Ile Gln Lys Gly Glu Phe Glu His 325 330 Ser Glu Thr Arg Glu Gly Glu Thr Gln Gly Val Ala Phe Glu His Glu 345 Ser Pro Ala Asp Phe Gln Asn Ser Gln Ser Pro Val Gln Asp Gln Asp 360 Lys Ser Gln Leu Ser Gly Arg Glu Glu Gln Ser Ser Asp Ala Gly Leu 375 380 Phe Lys Glu Glu Gly Gly Leu Asp Phe Leu Gly Arg Gln Asp Thr Asp 390 395 Tyr Arg Ser Met Glu Tyr Arg Asp Val Asp His Arg Leu Pro Gly Ser 405 410 Gln Met Phe Gly Tyr Gly Gln Ser Lys Ser Phe Pro Glu Gly Lys Thr 425 Ala Arg Asp Ala Gln Arg Asp Leu Gln Asp Gln Asp Tyr Arg Thr Gly 440 Pro Ser Glu Glu Lys Pro Ser Arg Leu Ile Arg Leu Ser Gly Val Pro 455 460 Glu Asp Ala Thr Lys Glu Glu Ile Leu Asn Ala Phe Arg Thr Pro Asp 470 475 Gly Met Pro Val Lys Asn Leu Gln Leu Lys Glu Tyr Asn Thr Gly Tyr 485 490 Asp Tyr Gly Tyr Val Cys Val Glu Phe Ser Leu Leu Glu Asp Ala Ile 500 505 Gly Cys Met Glu Ala Asn Gln Gly Thr Leu Met Ile Gln Asp Lys Glu 520 525 Val Thr Leu Glu Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys Lys Arg 535 540 Cys Lys Ala Asn Ile Gly Gly His Arg Ser Ser Cys Ser Phe Cys Lys 545 550 555 Asn Pro Arg Glu Val Thr Glu Ala Lys Gln Glu Leu Ile Thr Tyr Pro 565 570 575 Gln Pro Gln Lys Thr Ser Ile Pro Ala Pro Leu Glu Lys Gln Pro Asn 585 Gln Pro Leu Arg Pro Ala Asp Lys Glu Pro Glu Pro Arg Lys Arg Glu 600 Glu Gly Gln Glu Ser Arg Leu Gly His Gln Lys Arg Glu Ala Glu Arg 615 Tyr Leu Pro Pro Ser Arg Arg Glu Gly Pro Thr Phe Arg Arg Asp Arg 630 635 Glu Arg Glu Ser Trp Ser Gly Glu Thr Arg Gln Asp Gly Glu Ser Lys 650 Thr Ile Met Leu Lys Arg Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile 665 Val Glu Val Leu Glu Pro Tyr Val Arg Leu Thr Thr Ala Asn Val Arg 680 Ile Ile Lys Asn Arg Thr Gly Pro Met Gly His Thr Tyr Gly Phe Ile

690 695 700 Asp Leu Asp Ser His Val Glu Ala Leu Arg Val Val Lys Ile Leu Gln 710 715 Asn Leu Asp Pro Pro Phe Ser Ile Asp Gly Lys Met Val Ala Val Asn 725 730 Leu Ala Thr Gly Lys Arg Arg Asn Asp Ser Gly Asp His Ser Asp His 745 Met His Tyr Tyr Gln Gly Lys Lys Tyr Phe Arg Asp Arg Arg Gly Gly 760 Gly Arg Asn Ser Asp Trp Ser Ser Asp Thr Asn Arg Gln Gly Gln Gln 775 Ser Ser Ser Asp Cys Tyr Ile Tyr Asp Ser Ala Ser Gly Tyr Tyr . 790 795 Asp Pro Leu Ala Gly Thr Tyr Tyr Asp Pro Asn Thr Gln Gln Glu Val 805 810 Tyr Val Pro Gln Asp Pro Gly Leu Pro Glu Glu Glu Glu Ile Lys Glu 825 Lys Lys Pro Thr Ser Gln Gly Lys Ser Ser Ser Lys Lys Glu Met Ser 840 Lys Arg Asp Gly Lys Glu Lys Lys Asp Arg Gly Val Thr Arg Phe Gln 855 860 Glu Asn Ala Ser Glu Gly Lys Ala Pro Ala Glu Asp Val Phe Lys Lys 870 875 Pro Leu Pro Pro Thr Val Lys Lys Glu Glu Ser Pro Pro Pro Pro Lys 885 890 Val Val Asn Pro Leu Ile Gly Leu Leu Gly Glu Tyr Gly Gly Asp Ser 905 Asp Tyr Glu Glu Glu Glu Glu Glu Glu Gln Thr Pro Pro Pro Gln Pro 915 920 Arg Thr Ala Gln Pro Gln Lys Arg Glu Glu Gln Thr Lys Lys Glu Asn 935 940 Glu Glu Asp Lys Leu Thr Asp Trp Asn Lys Leu Ala Cvs Leu Leu Cvs 950 955 Arg Arg Gln Phe Pro Asn Lys Glu Val Leu Ile Lys His Gln Gln Leu 965 970 Ser Asp Leu His Lys Gln Asn Leu Glu Ile His Arg Lys Ile Lys Gln 980 985 Ser Glu Gln Glu Leu Ala Tyr Leu Glu Arg Arg Glu Arg Glu Gly Lys 1000 Phe Lys Gly Arg Gly Asn Asp Arg Arg Glu Lys Leu Gln Ser Phe Asp 1015 1020 Ser Pro Glu Arg Lys Arg Ile Lys Tyr Ser Arg Glu Thr Asp Ser Asp 1030 1035 Arg Lys Leu Val Asp Lys Glu Asp Ile Asp Thr Ser Ser Lys Gly Gly 1045 1050 Cys Val Gln Gln Ala Thr Gly Trp Arg Lys Gly Thr Gly Leu Gly Tyr 1060 1065 Gly His Pro Gly Leu Ala Ser Ser Glu Glu Ala Glu Gly Arg Met Arg 1075 1080 Gly Pro Ser Val Gly Ala Ser Gly Arg Thr Ser Lys Arg Gln Ser Asn 1095 1100 Glu Thr Tyr Arg Asp Ala Val Arg Arg Val Met Phe Ala Arg Tyr Lys 1110 1115 Glu Leu Asp

<210> 709 <211> 3807

<212> DNA <213> Homo Sapiens

<400> 709

aaggaggagc gggccgtgga ggcttcgccg cctaggtact gctataacca gaatttggta 60 taaaaaggat ttacttgttg gggccctctt gataaaaaga gatgtggggg gattctcgac 120 180 ctgctaacag aactggacct tttcgagatg gcgtttcgcc gtgttggccg ggctggtctc ggacteetga eeteaagtga teeacetaee teggeeteee aaagtgetgg gactataggt 240 gtgagccacc gcacctgcca tttggattgg caatctgcaa gattttatta cttaaatqca 300 acaqatqttc tcattcattq ttctqaaqct tqqaqttcca atgaaaaatt taqtqqqaqc 360 caagaagaaa ggtttgctcc cgggtggaac agggattatc ctcctcctcc ccttaagagt 420 catgeteaag agagacaete tggcaacttt cetggcagag atteaettee etttgattte 480 caggggcatt cggggcctcc ttttgcaaat gtagaggagc attetttcag ctatggagct 540 aqaqacqqac cqcatggtga ctatcqagga qqqqaqqqac ctqqacatga tttcaqqqqq 600 ggagattttt cgtcttctga tttccagagc agagattcat cacagttgga cttcaggggt 660 agggacatac attetgggga ttttegggat agagaaggac cacetatgga etataggggt 720 ggagatggta cttctatgga ttatagaggt agggaggcac ctcatatgaa ctacagagac 780 agggatgete acgetgttga etteagaggt agggatgete etceatetga etteagggge 840 cggggcactt atgatttaga ttttagaggc cgggatggat cccatgcaga ttttagggga 900 agggatttat cagatttgga ttttagggcc agagaacagt cccgttctga ttttaggaat 960 agagatgtat ctgatttgga ctttagagac aaagacggaa cacaagtaga ctttagaggc 1020 egaggtteag gtactactga tetagaettt agggacaggg atacgecaca tteagattte 1080 agaggtagac accgatctag gactgatcag gattttaggg gcagagagat gggatcttgt 1140 atggaattta aagataggga gatgcccct qtggatccaa atattttgga ttacattcag 1200 cectetacae aagatagaga acattetggt atgaatgtga acaggagaga agaateeaca 1260 cacgaccata cgatagaaag gcctgctttt ggcattcaga agggagaatt tgagcattca 1320 gaaacaagag aaggagaaac acaaggtgta gcctttgaac atgagtctcc agcagacttt 1380 cagaacagcc aaagtccagt tcaagaccaa gataagtcac agctttctgg acgtgaagag 1440 cagagttcag atgctggtct gtttaaagaa qaaggcggtc tggactttct tgggcgqcaa 1500 gacaccgatt acagaagcat ggagtaccgt gatgtggatc ataggctgcc aggaagccag 1560 atgtttggct atggccagag caagtctttt ccagagggca aaactgcccg agatgcccaa 1620 cgggaccttc aggatcaaga ttataggacc ggcccaagtg aggagaaacc cagcaggctt 1680 attegattaa gtggggtacc tgaagatgcc acaaaagaag agattettaa tgettttegg 1740 actectgatg geatgeetgt aaagaacttg cagttgaagg agtataacac aggttacgac 1800 tatggctatg tetgegtgga gttttcacte ttggaagatg ccateggatg catggaqgee 1860 aaccagggaa ctctaatgat ccaggacaaa gaagttaccc tggagtatgt atcaagcctg 1920 gatttttggt actgcaaacg atgtaaggca aacattggtg ggcaccgatc ttcctgttca 1980 ttctgcaaga acccaaqaga agtgacaqaq qccaaqcaaq aattaataac ctaccctcaq 2040 cctcagaaaa catccatacc agcaccattg gaaaaacagc ccaaccagcc cctaagacca 2100 gctgataagg aacctgaacc caggaagagg gaagaaggcc aagagtcacg cttaggacat 2160 caaaagagag aagcagaaag gtatctgcct ccttctcgaa gggaagggcc aactttccqa 2220 agagaccgag agagggagtc atggtctgga gagacacgcc aggatggaga gagcaaaact 2280 atcatgetaa agegtateta tegtteeaca ceacetgagg tgatagtgga agtgetggag 2340 2400 gggcatacet atggctttat tgacctcgac tcccatgtgg aagctcttcg tgtggtqaaq 2460 atcttacaga accttgatcc gccatttagc attgatggga agatggtagc tgtaaacctg 2520 gccactggaa aacgaagaaa tgattctggg gaccattctg accacatgca ttactatcag 2580 qqtaaaaaat atttccqaqa taqqaqqqqa qqtqqcaqaa attcaqactq qtcttcaqat 2640 acaaatcgac aaggacaaca gtcatcatct gactgctaca tatatgattc tgctagtggc 2700 tactattatg accccttggc aggaacttat tatgacccca atacccagca agaagtctat 2760 gtgccccagg atcctggatt acctgaggaa gaagagatca aggaaaaaaa acccaccagt 2820 caaggaaagt caagtagcaa gaaggaaatg totaaaagag atggcaagga gaaaaaagac 2880

2940

agaggagtga egaggtttca ggaaaatgec agtgaaggga aggeeeetge agaagaegte

tttaagaage ceetgeetee tactgtgaag aaggaagaga gteeceetee acctaaagtg 3000 gtaaacccac tgatcggcct cttgggtgaa tatggaggag acagtgacta tgaggaggaa 3060 gaagaggagg aacagacccc teecccacag eccegcacag cacageecca gaagegagag gagcaaacca agaaggagaa tgaagaagac aaactcactg actggaataa actggcttgt ctgctttgca gaaggcagtt tcccaataaa gaagttctga tcaaacacca gcagctgtca 3240 gacctgcaca agcaaaacct ggaaatccac cggaagataa aacagtctga gcaggagcta gcctatctgg aaaggagaga acgagaggga aagtttaaag gaagaggaaa tgatcgcagg 3360 gaaaagctcc agtcttttga ctctccagaa aggaaacgga ttaagtactc cagggaaact 3420 gacagtgatc gtaaacttgt tgataaagaa gatatcgaca ctagcagcaa aggaggctqt gtccaacagg ctactggctg gaggaaaggg acaggcctgg gatatggcca tcctggattg 3540 getteateag aggaggetga aggeeggatg aggggeecea gtgttggage eteaggaaga 3600 accagcaaaa gacagtccaa cgagacttat cgagatgctg ttcgaagagt catgtttgct 3660 cgatataaag aactcgatta agaaaggaga caagttccat gggatacaac ctccctcttg 3720 ttttgtttgt eteteetttt ettttgttae tgttettget getagaaett ttttaaataa 3780 acttttttc aatgtgatta aaaaaaa 3807

<210> 710 <211> 1177 <212> PRT

<213> Homo Sapiens

<400> 710

Met Ala Phe Arg Arg Val Gly Arg Ala Gly Leu Gly Leu Leu Thr Ser I 5 10 15 Ser Asp Pro Pro Thr Ser Ala Ser Gln Ser Ala Gly Thr Ile Gly Val 20 25 30 Ser His Arg Thr Cys His Leu Asp Trp Gln Ser Ala Arg Phe Tyr Tyr 35 40 45

Leu Asn Ala Thr Asp Val Leu Ile His Cys Ser Glu Ala Trp Ser Ser 50 55 60

Asn Glu Lys Phe Ser Gly Ser Gln Glu Glu Arg Phe Ala Pro Gly Trp 65 70 80 Asn Arg Asp Tyr Pro Pro Pro Pro Leu Lys Ser His Ala Gln Glu Arg

85 90 95 His Ser Gly Asn Phe Pro Gly Arg Asp Ser Leu Pro Phe Asp Phe Gln

100 105 110 Gly His Ser Gly Pro Pro Phe Ala Asn Val Glu Glu His Ser Phe Ser 115 120 125

Tyr Gly Ala Arg Asp Gly Pro His Gly Asp Tyr Arg Gly Gly Glu Gly
130 135 140

Pro Gly His Asp Phe Arg Gly Gly Asp Phe Ser Ser Ser Asp Phe Gln 145 150 150 155 Ser Arg Asp Ser Ser Gln Leu Asp Phe Arg Gly Arg Asp Ile His Ser

165 170 175
Gly Asp Phe Arg Asp Arg Glu Gly Pro Pro Met Asp Tyr Arg Gly Gly
180 185 190

Asp Gly Thr Ser Met Asp Tyr Arg Gly Arg Glu Ala Pro His Met Asn 195 200 205

Tyr Arg Asp Arg Asp Ala His Ala Val Asp Phe Arg Gly Arg Asp Ala 210 225 Pro Pro Ser Asp Phe Arg Gly Arg Gly Thr Tyr Asp Leu Asp Phe Arg

225 230 235 240 Gly Arg Asp Gly Ser His Ala Asp Phe Arg Gly Arg Asp Leu Ser Asp 245 250 250

Leu Asp Phe Arg Ala Arg Glu Gln Ser Arg Ser Asp Phe Arg Asn Arg

```
265
Asp Val Ser Asp Leu Asp Phe Arg Asp Lys Asp Gly Thr Gln Val Asp
                          280
Phe Arg Gly Arg Gly Ser Gly Thr Thr Asp Leu Asp Phe Arg Asp Arg
                      295
                                         300
Asp Thr Pro His Ser Asp Phe Arg Gly Arg His Arg Ser Arg Thr Asp
                  310
                                     315
Gln Asp Phe Arg Gly Arg Glu Met Gly Ser Cys Met Glu Phe Lys Asp
              325
                                 330
Arg Glu Met Pro Pro Val Asp Pro Asn Ile Leu Asp Tyr Ile Gln Pro
          340
                             345
Ser Thr Gln Asp Arg Glu His Ser Gly Met Asn Val Asn Arg Arg Glu
                          360
                                             365
Glu Ser Thr His Asp His Thr Ile Glu Arg Pro Ala Phe Gly Ile Gln
                      375
Lys Gly Glu Phe Glu His Ser Glu Thr Arg Glu Gly Glu Thr Gln Gly
                  390
                                     395
Val Ala Phe Glu His Glu Ser Pro Ala Asp Phe Gln Asn Ser Gln Ser
              405
                                 410
Pro Val Gln Asp Gln Asp Lys Ser Gln Leu Ser Gly Arg Glu Glu Gln
                             425
Ser Ser Asp Ala Gly Leu Phe Lys Glu Glu Gly Gly Leu Asp Phe Leu
                          440
Gly Arg Gln Asp Thr Asp Tyr Arg Ser Met Glu Tyr Arg Asp Val Asp
                      455
His Arg Leu Pro Gly Ser Gln Met Phe Gly Tyr Gly Gln Ser Lys Ser
                  470
                                     475
Phe Pro Glu Gly Lys Thr Ala Arg Asp Ala Gln Arg Asp Leu Gln Asp
              485
                                  490
Gln Asp Tyr Arg Thr Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu Ile
                              505
Arg Leu Ser Gly Val Pro Glu Asp Ala Thr Lys Glu Glu Ile Leu Asn
                          520
Ala Phe Arg Thr Pro Asp Gly Met Pro Val Lys Asn Leu Gln Leu Lys
                      535
                                         540
Glu Tyr Asn Thr Gly Tyr Asp Tyr Gly Tyr Val Cys Val Glu Phe Ser
                  550
                                     555
Leu Leu Glu Asp Ala Ile Gly Cys Met Glu Ala Asn Gln Gly Thr Leu
               565
                                  570
Met Ile Gln Asp Lys Glu Val Thr Leu Glu Tyr Val Ser Ser Leu Asp
                              585
Phe Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile Gly Gly His Arg Ser
                          600
Ser Cys Ser Phe Cys Lys Asn Pro Arg Glu Val Thr Glu Ala Lys Gln
                     615
                                         620
Glu Leu Ile Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile Pro Ala Pro
                  630
                                     635
Leu Glu Lys Gln Pro Asn Gln Pro Leu Arg Pro Ala Asp Lys Glu Pro
              645
                                  650
Glu Pro Arg Lys Arg Glu Glu Gly Gln Glu Ser Arg Leu Gly His Gln
                             665
Lys Arg Glu Ala Glu Arg Tyr Leu Pro Pro Ser Arg Arg Glu Gly Pro
                          680
                                             685
Thr Phe Arg Arg Asp Arg Glu Arg Glu Ser Trp Ser Gly Glu Thr Arg
                      695
```

Gln Asp Gly Glu Ser Lys Thr Ile Met Leu Lys Arg Ile Tyr Arg Ser 710 Thr Pro Pro Glu Val Ile Val Glu Val Leu Glu Pro Tyr Val Arg Leu 725 730 Thr Thr Ala Asn Val Arg Ile Ile Lys Asn Arg Thr Gly Pro Met Gly 745 His Thr Tyr Gly Phe Ile Asp Leu Asp Ser His Val Glu Ala Leu Arg 760 Val Val Lys Ile Leu Gln Asn Leu Asp Pro Pro Phe Ser Ile Asp Gly 775 780 Lys Met Val Ala Val Asn Leu Ala Thr Gly Lys Arg Arg Asn Asp Ser 790 795 Gly Asp His Ser Asp His Met His Tyr Tyr Gln Gly Lys Lys Tyr Phe 805 810 Arg Asp Arg Gly Gly Gly Arg Asn Ser Asp Trp Ser Ser Asp Thr 820 825 Asn Arg Gln Gly Gln Gln Ser Ser Ser Asp Cys Tyr Ile Tyr Asp Ser 840 Ala Ser Gly Tyr Tyr Tyr Asp Pro Leu Ala Gly Thr Tyr Tyr Asp Pro 855 Asn Thr Gln Glu Val Tyr Val Pro Gln Asp Pro Gly Leu Pro Glu 870 875 Glu Glu Glu Ile Lys Glu Lys Lys Pro Thr Ser Gln Gly Lys Ser Ser 885 890 Ser Lys Lys Glu Met Ser Lys Arg Asp Gly Lys Glu Lys Lys Asp Arg 905 Glv Val Thr Arg Phe Gln Glu Asn Ala Ser Glu Glv Lvs Ala Pro Ala 920 Glu Asp Val Phe Lys Lys Pro Leu Pro Pro Thr Val Lys Lys Glu Glu 935 940 Ser Pro Pro Pro Pro Lys Val Val Asn Pro Leu Ile Gly Leu Leu Gly 950 955 Glu Tyr Gly Gly Asp Ser Asp Tyr Glu Glu Glu Glu Glu Glu Glu Gln 965 970 Thr Pro Pro Pro Gln Pro Arg Thr Ala Gln Pro Gln Lys Arg Glu Glu 985 Gln Thr Lys Lys Glu Asn Glu Glu Asp Lys Leu Thr Asp Trp Asn Lys 995 1000 1005 Leu Ala Cys Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys Glu Val Leu 1015 1020 Ile Lys His Gln Gln Leu Ser Asp Leu His Lys Gln Asn Leu Glu Ile 1030 1035 His Arg Lys Ile Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu Glu Arg 1045 1050 Arg Glu Arg Glu Gly Lys Phe Lys Gly Arg Gly Asn Asp Arg Arg Glu 1065 Lys Leu Gln Ser Phe Asp Ser Pro Glu Arg Lys Arg Ile Lys Tyr Ser 1075 1080 Arg Glu Thr Asp Ser Asp Arg Lys Leu Val Asp Lys Glu Asp Ile Asp 1095 1100 Thr Ser Ser Lys Gly Gly Cys Val Gln Gln Ala Thr Gly Trp Arg Lys 1110 1115 Gly Thr Gly Leu Gly Tyr Gly His Pro Gly Leu Ala Ser Ser Glu Glu 1125 1130 Ala Glu Gly Arg Met Arg Gly Pro Ser Val Gly Ala Ser Gly Arg Thr

2580

1140 1145 1150 Ser Lys Arg Gln Ser Asn Glu Thr Tyr Arg Asp Ala Val Arg Arg Val Met Phe Ala Arg Tyr Lys Glu Leu Asp <210> 711 <211> 4060

<212> DNA <213> Homo Sapiens

<400> 711

ctgaaggcag cggcgcggcg cctttgtggt agcagtggcc ccgcgcggag gaaqttccqq 60 tqtccqcqqc gctaggtcqq tqgcggaggc tgaggagaaq qaqqaqcqqq ccgtqqaqqc 120 ttcgccgcct aggtactgct ataaccagaa tttggtataa aaaggattta cttgttgggg 180 ccctcttgat aaaaagagat gtggggggat tctcgacctg ctaacagaac tqqacctttt 240 cogactoggt gaaagetttt tetgeageag teatgttaaa aacettgtgt tgacttteet 300 cgtgttctga aactaacaga actggacctt ttcggactgg gtgaaagctt tttctgcagc 360 agtcatgttg aaaaccttgt gttgactttc ttcgtgttct gaaatgggag cataaaagtt 420 tactecqcca nttcqtctta aaataqcaaa actttqctqt tttctqcaqa tctaqqacct 480 tgttacagaa ctctgccaaa aaaaaaatgt ttacagaaga atgtgctgtg attagagaag 540 aatatgctgg tgtgtagatt tcaaactctc tggacaatat gaataacact gtctttgttt 600 ctacagtggg agccaagaag aaaggtttgc tcccgggtgg aacagggatt atcctcctcc 660 teccettaaq aqteatqete aaqaqaqaca etetqqeaac ttteetqqea qaqatteact 720 tecetttgat ttecagggge atteggggee teettttgea aatgtagagg ageattettt 780 cagetatgga getagagaeg gacegeatgg tgactatega ggaggggagg gacetggaea 840 tgatttcagg gggggagatt tttcgtcttc tgatttccag agcagagatt catcacagtt 900 ggacttcagg ggtagggaca tacattctgg ggattttcgg gatagagaag gaccacctat 960 qqactataqq gqtqqaqatq qtacttctat gqattataqa gqtaqqqaqq cacctcatat 1020 gaactacaga qacagggatg ctcacgctgt tgacttcaga ggtagggatg ctcctccatc 1080 tgacttcagg ggccggggca cttatgattt agattttaga ggccgggatg gatcccatgc 1140 agattttagg ggaagggatt tatcagattt ggattttagg gccagagaac agtcccgttc 1200 tgattttagg aatagagatg tatctgattt ggactttaga gacaaagacg gaacacaagt 1260 agactttaga ggccgaggtt caggtactac tgatctagac tttagggaca gggatacgcc 1320 acattcagat ttcagaggta gacaccgatc taggactgat caggatttta gggqcagaga 1380 gatgggatct tgtatggaat ttaaagatag ggagatgccc cctqtqqatc caaatatttt 1440 ggattacatt caqccctcta cacaaqatag aqaacattct qqtatqaatq tqaacaqqaq 1500 agaagaatee acacacgace atacgataga aaggeetget tittggcatte agaagggaga 1560 atttgagcat tcagaaacaa gagaaggaga aacacaaggt gtagcctttg aacatgagtc 1620 tccagcagac tttcagaaca gccaaagtcc agttcaagac caagataagt cacagctttc 1680 tggacgtgaa gagcagagtt cagatgctgg tctgtttaaa gaagaaggcg gtctqqactt 1740 tettqqqegg caagacaccg attacagaag catggagtac cgtgatgtgg atcatagget 1800 gccaggaagc cagatgtttg gctatggcca gagcaagtct tttccagagg gcaaaactgc 1860 ccgagatgcc caacgggacc ttcaggatca agattatagg accggcccaa gtgaggagaa 1920 acccagcagg cttattcgat taagtggggt acctgaagat gccacaaaag aagagattct 1980 taatgetttt eggacteetg atggeatgee tgtaaagaae ttqeaqttqa aqqaqtataa 2040 cacaggttac gactatggct atgtctgcgt ggagttttca ctcttggaag atgccatcgg 2100 atgcatggag gccaaccagg gaactctaat gatccaggac aaagaagtta ccctggagta 2160 tgtatcaagc ctggattttt ggtactgcaa acgatgtaag gcaaacattg gtgggcaccq 2220 atetteetgt teattetgea agaaceeaag agaagtgaca gaggeeaage aagaattaat 2280 aacctaccct cagcctcaga aaacatccat accagcacca ttggaaaaac agcccaacca gcccctaaga ccagctgata aggaacctga acccaggaag agggaagaag gccaagagtc 2400 2460 gccaacttte cgaagagace gagagagga gtcatggtet ggagagacae gccaqqatqq 2520 agaqaqcaaa actatcatgc taaagcgtat ctatcgttcc acaccacctg aqqtgataqt

1260

1320

1380

```
qqaaqtqctq qaqccctatg tccqccttac tactgccaac gtccgtatca tcaagaacag
                                                                     2640
aacaqqccct atqqqqcata cctatqqctt tattgacctc gactcccatg tggaagctct
                                                                     2700
tcgtgtggtg aagatcttac agaaccttga tccgccattt agcattgatg ggaagatggt
                                                                     2760
                                                                     2820
agetgtaaac ctggccactg gaaaacgaag aaatgattet ggggaccatt ctgaccacat
gcattactat cagggtaaaa aatatttccg agataggagg ggaggtggca gaaattcaga
                                                                     2880
ctqqtcttca gatacaaatc gacaaggaca acagtcatca tctgactgct acatatatga
                                                                     2940
ttctgctagt ggctactatt atgacccctt ggcaggaact tattatgacc ccaataccca
                                                                     3000
gcaagaagte tatgtgccc aggatcctgg attacctgag gaagaagaga tcaaggaaaa
                                                                     3060
aaaacccacc agtcaaggaa agtcaagtag caagaaggaa atgtctaaaa gagatggcaa
                                                                     3120
qqaqaaaaaa qacaqaqqag tgacgaggtt tcaggaaaat gccagtgaag ggaaggcccc
                                                                     3180
tqcaqaaqac qtctttaaqa aqcccctqcc tcctactqtq aagaaggaag aqaqtccccc
                                                                     3240
tecacetaaa gtggtaaace caetgategg cetettgggt gaatatggag gagacagtga
                                                                     3300
ctatgaggag gaagaagagg aggaacagac ccctccccca cagccccgca cagcacagcc
                                                                     3360
ccagaagcga qaggaqcaaa ccaagaagga gaatgaagaa gacaaactca ctgactggaa
                                                                     3420
taaactggct tgtctgcttt qcaqaaggca gtttcccaat aaagaagttc tgatcaaaca
                                                                     3480
ccaqcaqctq tcaqacctqc acaaqcaaaa cctqqaaatc caccqqaaga taaaacaqtc
                                                                     3540
                                                                     3600
tgagcaggag ctagcctatc tggaaaggag agaacgagag ggaaagttta aaggaagagg
aaatgatege agggaaaage teeagtettt tgacteteea gaaaggaaac ggattaagta
                                                                     3660
ctccaqqqaa actgacagtg atcgtaaact tgttgataaa gaagatatcg acactagcag
                                                                     3720
caaaqqaqqc tqtqtccaac aqqctactqq ctqqaqqaaa qqqacaqqcc tqqqatatqq
                                                                     3780
ccatcctgga ttggcttcat cagaggaggc tgaaggccgg atgaggggcc ccagtgttgg
                                                                     3840
agectcagga agaaccagca aaagacagtc caacgagact tatcgagatg ctgttcgaag
                                                                     3900
agtcatgttt gctcgatata aagaactcga ttaagaaagg agacaagttc catgggatac
                                                                     3960
aacetecete tigtitigit tgicteteet titetitigi tactgiteti getgetagaa
                                                                     4020
cttttttaaa taaacttttt ttcaatgtga ttaaaaaaaa
                                                                     4060
      <210> 712
      <211> 3736
      <212> DNA
      <213> Homo Sapiens
      <400> 712
aaggaggagc gggccgtgga ggcttcgccg cctaggtact gctataacca gaatttggta
                                                                        60
gaaaaaggat ttacttgttg gggccctctt gataaaaaga gatgtggggg gattctcgac
                                                                       120
ctgctaacag aactggacct tttcgatcta ggaccttgtt acagaactct gccaaaaaaa
                                                                       180
aaatgtttac agaagaatgt gctgtgatta gagaagaata tgctggtgtg tagatttcaa
                                                                       240
actioning a caatatgaat aacactgict tigtitictae agtgggagee aagaagaaag
                                                                       300
qtttqctccc ggqtgqaaca qggattatcc tcctcctccc cttaagagtc atgctcaaqa
                                                                       360
qaqacactct qqcaactttc ctqqcaqaqa ttcacttccc tttqatttcc aqqqqcattc
                                                                       420
ggggcctcct tttgcaaatg tagaggagca ttctttcagc tatggagcta gagacggacc
                                                                       480
gcatggtgac tatcgaggag gggagggacc tggacatgat ttcagggggg gagatttttc
                                                                       540
gtettetgat tteeagagea gagatteate acagttggae tteaggggta gggacataca
                                                                       600
ttctggggat tttcgggata gagaaggacc acctatggac tataggggtg gagatggtac
                                                                       660
ttctatggat tatagaggta gggaggcacc tcatatgaac tacagagaca gggatgctca
                                                                       720
cqctqttqac ttcaqaqqta qqqatqctcc tccatctqac ttcaqqqqcc qqqqcactta
                                                                       780
tgatttagat tttagaggcc gggatggatc ccatgcagat tttagggggaa gggatttatc
                                                                       840
agatttggat tttagggcca gagaacagtc ccgttctgat tttaggaata gagatgtatc
                                                                       900
tgatttqqac tttaqaqaca aaqacqqaac acaaqtaqac tttaqaqqcc qaqqttcaqq
                                                                       960
tactactgat ctagacttta gggacaggga tacgccacat tcagatttca gaggtagaca
                                                                      1020
cegatetagg actgateagg attttagggg cagagagatg ggatettgta tggaatttaa
                                                                      1080
agatagggag atgcccctg tggatccaaa tattttggat tacattcagc cctctacaca
                                                                      1140
agatagagaa cattctqqta tqaatqtqaa caqqaqaqaa qaatccacac acqaccatac
                                                                      1200
```

gatagaaagg cctgcttttg gcattcagaa gggagaattt gagcattcag aaacaagaga

aggagaaaca caaggtgtag cctttgaaca tgagtctcca gcagactttc agaacaqcca

aagtccagtt caagaccaag ataagtcaca gctttctqga cgtgaagagc aqagttcaga

```
tgctggtctg tttaaagaag aaggcggtct ggactttctt gggcggcaag acaccgatta
cagaagcatg gagtaccgtg atgtggatca taggctgcca ggaagccaga tgtttggcta
tggccagagc aagtetttte cagagggcaa aactgcccga gatgcccaac gggacettca
                                                                    1560
ggatcaagat tataggaccg gcccaagtga ggagaaaccc agcaggctta ttcgattaag
                                                                    1620
tggggtacct gaagatgcca caaaagaaga gattcttaat gcttttcgga ctcctqatgg
catgootgta aagaacttgo agttgaagga gtataacaca ggttacgact atggotatgt
ctgcgtggag ttttcactct tggaagatgc catcggatgc atggaggcca accagggaac
tetaatgate caggacaaag aagttaceet ggagtatgta teaageetgg atttttggta
ctgcaaacga tgtaaggcaa acattggtgg gcaccgatct tcctgttcat tctgcaagaa
cccaagagaa gtgacagagg ccaagcaaga attaataacc taccctcagc ctcagaaaac
                                                                    1980
atccatacca gcaccattgg aaaaacagcc caaccagccc ctaagaccag ctgataagga
                                                                    2040
acctgaaccc aggaagagg aagaaggcca agagtcacgc ttaggacatc aaaagagaga
                                                                    2100
aqcagaaagg tatctgcctc cttctcgaag ggaagggcca actttccgaa gagaccgaga
                                                                    2160
gagggagtca tggtctggag agacacgcca ggatggagag agcaaaacta tcatgctaaa
                                                                    2220
gogtatctat cgttccacac cacctgaggt gatagtggaa gtgctggagc cctatgtccg
                                                                    2280
cettactact gecaacgtcc gtatcatcaa gaacagaaca ggccctatgg ggcataccta
                                                                    2340
tggctttatt gacctcgact cccatgtgga agctcttcgt gtggtgaaga tcttacagaa
                                                                    2400
cettgateeg ceatttagea ttgatgggaa gatggtaget gtaaacetgg ceaetggaaa
acgaagaaat gattctgggg accattctga ccacatgcat tactatcagg gtaaaaaata
                                                                    2520
tttccgagat aggagggag gtggcagaaa ttcagactgg tcttcagata caaatcgaca
aggacaacag tcatcatctg actgctacat atatgattct gctagtggct actattatga
ccccttggca ggaacttatt atgaccccaa tacccagcaa gaagtctatg tgccccagga
                                                                    2700
tcctggatta cctgaggaag aagagatcaa ggaaaaaaaa cccaccagtc aaggaaagtc
                                                                    2760
aagtagcaag aaggaaatgt ctaaaagaga tggcaaggag aaaaaagaca gaggagtgac
                                                                    2820
gaggtttcag gaaaatgcca gtgaagggaa ggcccctgca gaagacgtct ttaagaagcc
                                                                    2880
cotgectect actgtgaaga aggaagagag tececeteca cetaaagtgg taaacecact
                                                                    2940
gatcggcctc ttgggtgaat atggaggaga cagtgactat gaggaggaag aagaggagga
acagacecet eccecacage ecegeacage acageeceag aagegagagg ageaaaceaa
gaaggagaat gaagaagaca aactcactga ctggaataaa ctggcttgtc tgctttgcag
                                                                    3120
aaggcagttt cccaataaag aagttctgat caaacaccag cagctgtcag acctgcacaa
                                                                    3180
gcaaaacctg gaaatccacc ggaagataaa acagtctgag caggagctag cctatctgga
                                                                    3240
aaggagagaa cgagagggaa agtttaaagg aagaggaaat gatcgcaggg aaaagctcca
gtcttttgac tctccagaaa ggaaacggat taagtactcc agggaaactg acagtgatcg
                                                                    3360
taaacttgtt gataaagaag atatcgacac tagcagcaaa ggaggctgtg tccaacaggc
tactggctgg aggaaaggga caggcctggg atatggccat cctggattgg cttcatcaga
ggaggctgaa ggccggatga ggggccccag tgttggagcc tcaggaagaa ccaqcaaaaq
                                                                    3540
acagtecaac gagacttate gagatgetgt tegaagagte atgtttgete gatataaaga
                                                                    3600
actogattaa gaaaggagac aagttocatg ggatacaacc tocotottgt titgtitgto
                                                                    3660
teteetttte ttttgttaet gttettgetg etagaacttt tttaaataaa ettttttea
                                                                    3720
atqtqattaa aaaaaa
                                                                    3736
```

<213> Homo Sapiens

<210> 713

```
<400> 714
Pro Val Asp Pro Xaa Asn Ile Leu Asp Tyr
                5
     <210> 715
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 715
Asp Thr Asp Tyr Xaa Arg Ser Met Glu Tyr
                5
     <210> 716
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 716
Ser Leu Leu Glu Xaa Asp Ala Ile Gly Cys
                5
     <210> 717
     <211> 10
     <212> PRT
     <213> Homo Sapiens
    <400> 717
Thr Leu Met Ile Xaa Gln Asp Lys Glu Val
1
    <210> 718
     <211> 10
    <212> PRT
     <213> Homo Sapiens
     <400> 718
Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys
               5
     <210> 719
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 719
Val Ile Val Glu Val Leu Glu Pro Tyr Val
     <210> 720
     <211> 10
     <212> PRT
     <213> Homo Sapiens
```

<400> 720

```
Lys Leu Thr Asp Xaa Trp Asn Lys Leu Ala
     <210> 721
     <211> 10
     <212> PRT
      <213> Homo Sapiens
     <400> 721
Gln Leu Ser Asp Leu His Lys Gln Asn Leu
     <210> 722
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 722
Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu
               5
     <210> 723
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 723
Lys Leu Val Asp Lys Glu Asp Ile Asp Thr
1
                5
     <210> 724
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 724
Val Met Phe Ala Xaa Arg Tyr Lys Glu Leu
                                   10
     <210> 725
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 725
Gln Met Phe Gly Xaa Tyr Gly Gln Ser Lys
                                   10
     <210> 726
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 726
Gly Met Pro Val Lys Asn Leu Gln Leu Lys
```

```
1
                                  10
     <210> 727
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 727
Gly Leu Pro Glu Xaa Glu Glu Glu Ile Lys
     <210> 728
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 728
Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys
                5
     <210> 729
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 729
Glu Tyr Arg Asp Xaa Val Asp His Arg Leu
     <210> 730
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 730
Gly Tyr Val Cys Xaa Val Glu Phe Ser Leu
     <210> 731
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 731
Asp Tyr Gly Tyr Xaa Val Cys Val Glu Phe
     <210> 732
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 732
Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile
```

```
<210> 733
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 733
Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile
     <210> 734
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 734
Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile
                5
      <210> 735
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 735
His Tyr Tyr Gln Xaa Gly Lys Lys Tyr Phe
     <210> 736
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 736
Val Tyr Val Pro Xaa Gln Asp Pro Gly Leu
      <210> 737
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 737
Trp Asn Arg Asp Tyr Pro Pro Pro Pro Leu
     <210> 738
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 738
Met Pro Pro Val Xaa Asp Pro Asn Ile Leu
                5
                                    10
```

<210> 739

```
<211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 739
Thr Ala Arg Asp Xaa Ala Gln Arg Asp Leu
     <210> 740
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 740
Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu
     <210> 741
     <211> 10
     <212> PRT
     <213 > Homo Sapiens
     <400> 741
Thr Pro Pro Glu Val Ile Val Glu Val Leu
               5
                                  10
    <210> 742
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 742
Arg Val Met Phe Ala Arg Tyr Lys Glu Leu
     <210> 743
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 743
Arg Glu Met Gly Xaa Ser Cys Met Glu Phe
1
                5
     <210> 744
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 744
Glu Glu Gln Ser Ser Asp Ala Gly Leu Phe
     <210> 745
     <211> 10
```

```
<212> PRT
      <213> Homo Sapiens
     <400> 745
Lys Glu Tyr Asn Xaa Thr Gly Tyr Asp Tyr
     <210> 746
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 746
Thr Glu Ala Lys Gln Glu Leu Ile Thr Tyr
     <210> 747
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 747
Val Glu Ala Leu Arg Val Val Lys Ile Leu
1
     <210> 748
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 748
Gly Glu Tyr Gly Xaa Gly Asp Ser Asp Tyr
1
                                  10
     <210> 749
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 749
Leu Glu Arg Arg Glu Arg Glu Gly Lys Phe
                5
     <210> 750
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 750
Arg Gln Asp Gly Glu Ser Lys Thr Ile Met
     <210> 751
     <211> 10
```

<212> PRT

```
<213> Homo Sapiens
       <400> 751
 Thr Pro Pro Glu Val Ile Val Glu Val Leu
             5
      <210> 752
       <211> 10
       <212> PRT
       <213> Homo Sapiens
      <400> 752
 Tyr Gly Phe Ile Asp Leu Asp Ser His Val
                 5
       <210> 753
       <211> 10
       <212> PRT
       <213> Homo Sapiens
      <400> 753
 Arg Gln Phe Pro Xaa Asn Lys Glu Val Leu
                 5
      <210> 754
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 754
Asn Val Glu Glu Xaa His Ser Phe Ser Tyr
                                    10
      <210> 755
      <211> 10
       <212> PRT
       <213> Homo Sapiens
      <400> 755
 Pro Val Asp Pro Xaa Asn Ile Leu Asp Tyr
                  5
                                    10
       <210> 756
       <211> 10
       <212> PRT
       <213> Homo Sapiens
      <400> 756
 Asp Thr Asp Tyr Xaa Arg Ser Met Glu Tyr
       <210> 757
```

<211> 10 <212> PRT <213> Homo Sapiens

```
<400> 757
Trp Gln Ser Ala Xaa Arg Phe Tyr Tyr Leu
 1
                                    10
     <210> 758
     <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 758
Ser Leu Leu Glu Xaa Asp Ala Ile Gly Cys
                                    10
     <210> 759
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 759
Thr Leu Met Ile Xaa Gln Asp Lys Glu Val
     <210> 760
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 760
Tyr Val Ser Ser Leu Asp Phe Trp Tyr Cys
1
     <210> 761
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 761
Val Ile Val Glu Val Leu Glu Pro Tyr Val
     <210> 762
     <211> 10
      <212> PRT
     <213> Homo Sapiens
     <400> 762
Lys Leu Thr Asp Xaa Trp Asn Lys Leu Ala
     <210> 763
     <211> 10
     <212> PRT
     <213> Homo Sapiens
```

<400> 763

```
Gln Leu Ser Asp Leu His Lys Gln Asn Leu
     <210> 764
     <211> 10
     <212> PRT
      <213> Homo Sapiens
     <400> 764
Lys Gln Ser Glu Gln Glu Leu Ala Tyr Leu
               5
     <210> 765
      <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 765
Lys Leu Val Asp Lys Glu Asp Ile Asp Thr
                5
     <210> 766
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 766
Val Met Phe Ala Xaa Arg Tyr Lys Glu Leu
1
     <210> 767
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 767
Gln Met Phe Gly Xaa Tyr Gly Gln Ser Lys
                5
      <210> 768
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 768
Gly Met Pro Val Lys Asn Leu Gln Leu Lys
                5
      <210> 769
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 769
Gly Leu Pro Glu Xaa Glu Glu Glu Ile Lys
```

```
5
                                 10
      <210> 770
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 770
Leu Leu Cys Arg Arg Gln Phe Pro Asn Lys
     <210> 771
     <211> 10
     <212> PRT
      <213> Homo Sapiens
     <400> 771
Tyr Tyr Leu Asn Xaa Ala Thr Asp Val Leu
     <210> 772
     <211> 10
     <212> PRT
      <213> Homo Sapiens
    <400> 772
Phe Tyr Tyr Leu Asn Ala Thr Asp Val Leu
1
               5
     <210> 773
     <211> 10
     <212> PRT
     <213> Homo Sapiens
    <400> 773
Glu Tyr Arg Asp Xaa Val Asp His Arg Leu
     <210> 774
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 774
Gly Tyr Val Cys Xaa Val Glu Phe Ser Leu
        5
     <210> 775
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 775
Asp Tyr Gly Tyr Xaa Val Cys Val Glu Phe
1
                5
```

```
<210> 776
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 776
Trp Tyr Cys Lys Arg Cys Lys Ala Asn Ile
      <210> 777
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 777
 Thr Tyr Pro Gln Pro Gln Lys Thr Ser Ile
      <210> 778
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 778
 Ile Tyr Arg Ser Thr Pro Pro Glu Val Ile
 1
      <210> 779
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 779
His Tyr Tyr Gln Xaa Gly Lys Lys Tyr Phe
 1
      <210> 780
       <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 780
 Val Tyr Val Pro Xaa Gln Asp Pro Gly Leu
  1
         5
      <210> 781
       <211> 10
       <212> PRT
       <213> Homo Sapiens
      <400> 781
 Trp Asn Arg Asp Tyr Pro Pro Pro Pro Leu
  1
                 5
      <210> 782
```

```
<211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 782
Met Pro Pro Val Xaa Asp Pro Asn Ile Leu
                5
     <210> 783
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 783
Thr Ala Arg Asp Xaa Ala Gln Arg Asp Leu
               5
     <210> 784
      <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 784
Gly Pro Ser Glu Glu Lys Pro Ser Arg Leu
1
                5
                                  10
     <210> 785
     <211> 10
     <212> PRT
     <213> Homo Sapiens
     <400> 785
Thr Pro Pro Glu Val Ile Val Glu Val Leu
                5
      <210> 786
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 786
Arg Val Met Phe Ala Arg Tyr Lys Glu Leu
                5
      <210> 787
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 787
Ser Glu Ala Trp Ser Ser Asn Glu Lys Phe
                5
                                   10
      <210> 788
      <211> 10
```

```
<212> PRT
      <213> Homo Sapiens
      <400> 788
Arg Glu Met Gly Xaa Ser Cys Met Glu Phe
      <210> 789
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 789
Glu Glu Gln Ser Ser Asp Ala Gly Leu Phe
                5
      <210> 790
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 790
Lys Glu Tyr Asn Xaa Thr Gly Tyr Asp Tyr
                5
      <210> 791
      <211> 10
      <212> PRT
      <213> Homo Sapiens
     <400> 791
Thr Glu Ala Lys Gln Glu Leu Ile Thr Tyr
      <210> 792
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 792
Val Glu Ala Leu Arg Val Val Lys Ile Leu
      <210> 793
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 793
 Gly Glu Tyr Gly Xaa Gly Asp Ser Asp Tyr
                                    10
      <210> 794
      <211> 10
      <212> PRT
```

```
<213> Homo Sapiens
      <400> 794
Leu Glu Arg Arg Glu Arg Glu Gly Lys Phe
      <210> 795
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 795
Arg Gln Asp Gly Glu Ser Lys Thr Ile Met
      <210> 796
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 796
Thr Pro Pro Glu Val Ile Val Glu Val Leu
                                     10
      <210> 797
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 797
Tyr Gly Phe Ile Asp Leu Asp Ser His Val
                                     10
      <210> 798
      <211> 10
      <212> PRT
      <213> Homo Sapiens
      <400> 798
Arg Gln Phe Pro Xaa Asn Lys Glu Val Leu
                                     10
```

<210> 799 <211> 1464

<212> DNA

<213> Homo Sapiens

<400> 799

aglaccgggt acgcagggt gcclcaacca cactccgtc acggactotc cgttattta 60
ggaggtccct ggccaacgat ttatttctct tgacaaccaa ggcctccg ctggatttcc 120
aaggcaagaat ttcctctgaa gcaccggaac ttgctactac cagcaccatg ccctaccaat 180
atccagcact gaccccggag cagaagaagg agctgtctga catcgctcac cgcatcgtgg 240
cacctggcaa gggcatcctg gctgcagatg agccaccgg gagcattgc aagcggctgc 3300
agtccattgg caccggaaca accgaggaa accgggctc ctaccgccag ctgctgctga 360
cagctgacga ccgcgtgaac ccctgcattg ggggtgtcat cctcttccat gggacactct

```
accagaaggc ggatgatggg cgtcccttcc cccaagttat caaatccaag ggcggtgttg
                                                                      480
tgggcatcaa ggtagacaag ggcgtggtcc ccctggcagg gacaaatggc gagactacca
cccaagggtt ggatgggctg tctgagcgct gtgcccagta caagaaggac ggagctgact
togccaagtg gogttgtgtg ctgaagattg gggaacacac cccctcagcc ctcgccatca
                                                                      660
tggaaaatgc caatgttctg gcccgttatg ccagtatctg ccagcagaat ggcattgtgc
                                                                      720
ccatcgtgga gcctgagatc ctccctgatg gggaccatga cttgaagcgc tgccagtatg
                                                                      780
tgaccgagaa ggtgctggct gctgtctaca aggctctgag tgaccaccac atctacctqg
                                                                      840
aaggcacctt getgaageee aacatggtea eeccaggeea tgettgeaet cagaagtttt
                                                                      900
ctcatgagga gattgccatg gcgaccgtca cagcgctgcg ccgcacagtg ccccccgctg
teactgggat cacetteetg tetggaggee agagtgagga ggaggegtee ateaacetea
                                                                    1020
atgccattaa caagtgcccc ctgctgaagc cctgggccct gaccttctcc tacggccgag
                                                                    1080
ccctgcaggc ctctgccctg aaggcctggg gcgggaagaa ggagaacctg aaggctgcgc
                                                                    1140
aggaggagta tgtcaagcga gccctggcca acagccttgc ctgtcaagga aagtacactc
                                                                    1200
cgagcggtca ggctggggct gctgccagcg agtccctctt cgtctctaac cacgcctatt
                                                                    1260
aageggaggt gtteecagge tgeececaac aacteeagge cetgeecect cecactettg
aagaggagge egecteeteg gggeteeagg etggettgee egegetettt etteeetegt
                                                                    1380
gacagtggtg tgtggtgtcg tctgtgaatg ctaagtccat caccetttcc ggcacactgc
                                                                    1440
caaataaaca gctatttaag gggg
                                                                    1464
```

<210> 800 <211> 364

<212> PRT <213> Homo Sapiens

<400> 800 Met Pro Tyr Gln Tyr Pro Ala Leu Thr Pro Glu Gln Lys Lys Glu Leu 1 5 Ser Asp Ile Ala His Arg Ile Val Ala Pro Gly Lys Gly Ile Leu Ala 25 Ala Asp Glu Ser Thr Gly Ser Ile Ala Lys Arg Leu Gln Ser Ile Gly 40 Thr Glu Asn Thr Glu Glu Asn Arg Arg Phe Tyr Arg Gln Leu Leu Leu Thr Ala Asp Asp Arg Val Asn Pro Cys Ile Gly Gly Val Ile Leu Phe 70 75 His Glu Thr Leu Tyr Gln Lys Ala Asp Asp Gly Arg Pro Phe Pro Gln 90 Val Ile Lys Ser Lys Gly Gly Val Val Gly Ile Lys Val Asp Lys Gly 105 110 Val Val Pro Leu Ala Gly Thr Asn Gly Glu Thr Thr Thr Gln Gly Leu 120 Asp Gly Leu Ser Glu Arg Cys Ala Gln Tyr Lys Lys Asp Gly Ala Asp 135 140 Phe Ala Lys Trp Arg Cys Val Leu Lys Ile Gly Glu His Thr Pro Ser 150 155 Ala Leu Ala Ile Met Glu Asn Ala Asn Val Leu Ala Arg Tyr Ala Ser 165 170 Ile Cys Gln Gln Asn Gly Ile Val Pro Ile Val Glu Pro Glu Ile Leu 185 Pro Asp Gly Asp His Asp Leu Lys Arg Cys Gln Tyr Val Thr Glu Lys 195 200 Val Leu Ala Ala Val Tyr Lys Ala Leu Ser Asp His His Ile Tyr Leu 215 Glu Gly Thr Leu Leu Lys Pro Asn Met Val Thr Pro Gly His Ala Cys

230

Thr Gln Lvs Phe Ser His Glu Glu Ile Ala Met Ala Thr Val Thr Ala Leu Arg Arg Thr Val Pro Pro Ala Val Thr Gly Ile Thr Phe Leu Ser 265 Gly Gly Gln Ser Glu Glu Glu Ala Ser Ile Asn Leu Asn Ala Ile Asn 280 Lys Cys Pro Leu Leu Lys Pro Trp Ala Leu Thr Phe Ser Tyr Gly Arg Ala Leu Gln Ala Ser Ala Leu Lys Ala Trp Gly Gly Lys Lys Glu Asn 310 315 Leu Lys Ala Ala Gln Glu Glu Tyr Val Lys Arg Ala Leu Ala Asn Ser 330 Leu Ala Cys Gln Gly Lys Tyr Thr Pro Ser Gly Gln Ala Gly Ala Ala 345 Ala Ser Glu Ser Leu Phe Val Ser Asn His Ala Tyr 360

<210> 801

<211> 3504

<212> DNA <213> Homo Sapiens

<400> 801 ctctqctttt ctctttcaga gctgttgcgc agccattggt acctgtattq qqqaaacata gcatacaagc aagaagctta cagcctcagt ggcgaaaaat ttttcatgtc agagaccgag 120 aactottgca gtcgtttatg tcatccottc ttctccagac agaagatacc aaaaagttgc 180 aatcaaagat ctgttcatct tattgataaa gtcactaata agccaaaatg tctgtcaacg 240 tcaaccqcag cgtgtcagac cagttctatc gctacaagat gccccgtttg attgctaagg 300 ttgagggcaa aggaaatgga atcaagacag ttatagtcaa catqqttgac qttqcaaaqq 360 cgcttaatcg gcctccaacg tatcccacca aatattttgg ttgtgagctg ggagcacaga cccagtttga tgttaagaat gaccgttaca ttgtcaatgg atctcatgag gcgaataagc tgcaagacat gttggatgga ttcattaaaa aatttgttct ctgtcctgag tgtgagaatc 540 ctgaaacaga tctgcatgtc aatccaaaga agcaaacaat aggtaattct tgtaaagcct 600 gtgggtaccg aggcatgctt gacacacatc ataaactctg tacattcatt ctcaaaaaacc 720 gcaaggacaa ggaaaatggc tetgtateca ccagtgagac accaccacct ccaccacca 780 atgaaattag tootocacat gotgtggaag aagaggaaga tgatgattgg ggggaggata 840 caactgagga agctcaaagg cgcagaatgg atgaaatcag tgaccatgca aaaggtctga cacttagega tgatttggaa agaactgtag aagagegtgt taacateetg tttgattttg 960 ttaagaaaaa gaaagaagag ggcattattg attcatctga taaagacatt gtggctqaqq 1020 cagaaagact ggatgtaaaa gccatgggcc ctctcgtttt gacagaagtt ctctttqatq 1080 aqaaqataag agagcaaatc aagaaataca ggcgccattt tttaagattt tgtcataaca 1140 acaaaaaggc ccagcggtac cttcttcatg gtttggaatg tgtggtagca atgcatcaag 1200 ctcagttgat ctccaagatt ccacatatct tgaaggagat gtatgatgca gaccttttag 1260 aggaagaggt cattatcagc tggtcagaaa aggcctctaa gaaatatgtc tcaaaaqaac 1320 ttgccaaaga gattcgtgtc aaagcagagc catttattaa atggttgaag gaagcggagg 1380 aggaatette tggtggtgag gaagaagaeg aagatgaaaa tattgaggtg gtatattega agactgccag tgtaccaaaa gttgaaactg tgaagtctga caacaaggat gacgacattg 1500 atattgatgc catttaaaag gatggatgca acttagctta acagtgtaat gctgcaaatt 1560 tttctccatt atcagccaga agtgcaacat gtatgtgcaa gagctaaagt ggcttaacat catgctacac ttgatactaa aaagctatta ctgtqaqtqq tctataatta agcccaatga 1680 gacatctagg qaqtccatac atatcagtga qcagttgtag tttgcttatt tatagcatgt 1740 ttctttcgga aaaactagtg gtggacacat ttggatcaca tttatacagt tataaaaaat 1800 aaagatttga ttttggtcat tcttcagact ttgggctatg aatggcttat gctgaagtaa 1860 ttggctactt ttaggatgtt acaccattta ataacttaga cttcttaagt ttggtagatt

1920

```
qttaqqtact qaaqacttqa aqaatqcaaa caattataat qaccttactc agccattaaq
                                                                     1980
aaatgaagta ttttgaaagt tgtgtctcca gtccattgag attggcaact gacaattctt
                                                                     2040
gtcattctaa ggaaatttga tgatttaatg acagtgtgac atcctcatga gaagtaaaaa
                                                                     2100
tgacctgtqt qtcctatqgt ttaaqaqcaa attttqaaac ttqqaqttqt qqtttttcaq
                                                                     2160
tttgtgtaca ctcaccccaa attgtagtct attgagtcat gtgcattgca cgttggataa
                                                                     2220
gccaqqqaaa tgacaaataa gtattttgtg tgtatttagt ggttgctttg tactgagaga
                                                                     2280
aaaqctttqa qqtqtgatta aatcgtaaac tctgattcta tttqqqaqaa acaqqaaaaa
                                                                     2340
ggtgcactta atctaaaaca gcataagttt tcaactttta cccttaaatt ataatttcaa
                                                                     2400
gatgtttaga catactgtat cttgtgtttg atgtgttccc cctccctaat attatggttt
                                                                     2460
attetttaat geettttaat tiggatataa tagetigtae titagatiit qqtigetate
                                                                     2520
ttgccaaaat aagtgttact gtttttcaag cttgatcccc ttccctgatt qtcttattta
                                                                     2580
aagagaaagt taaactcata cttctgagtc agagcctgta ttttggttaa gacttgggat
                                                                     2640
attttttact tcacattqaa tataqctqqa tacctqaqaa qtctqqtqat qqcactqqqt
                                                                     2700
gggtgcaget agetaaggee tgaccageee atteagagee ttggaettea gacacaaaag
                                                                     2760
tgagtttctt acccacttgc tggtgtaaac tctatctggg gtcctgacta tatttqaata
                                                                     2820
cttqtcttca atattaaaaa acataqcaca tttttctttc tacaaaaqta cattctqqaq
                                                                     2880
ttaagaaccc atgtggttga tttgtgtgtg gcgtgctagc tcatacatta tttggatctt
                                                                     2940
attetttgtg teatecatet cacagattat aagaetttga ttaatgtaaa aagtatgegt
                                                                     3000
taaaatcata ccaaacattt ggtaaaatta aaaccttgat gggaggctgg gcgtggaaca
                                                                     3060
ggagccatat acctggaatg gtaacagggg aatgtgctat gtcacaccaa agaagtggga
                                                                     3120
cttggaaagt Cacttgtctc ctgggtttca qactctttgt tgcatggca gcccatccat
                                                                     3180
atgtcattac tttttgagat tctcaagtag atcagcacat ttcggcctca ggttggcaag
attttgtctt agagctgttg ctttaaaggg aaatggtcag gtcttagaca cttaggaagg
                                                                    3300
tcttgggctt ctgttcattc tggtgccaaa ccagtgggat tcaaatttca cacaatctgg
                                                                    3360
gtttttattc atggaggtta acctggtaag agtaatcett catqqctcta ttqaqqtqtc
                                                                     3420
ttaaaaagtt tootgtttca aacagotaca ttacttgatt aaaacaatgt tataaaatta
                                                                     3480
aatttccccc tcctttcata ttaa
                                                                     3504
```

<210> 802 <211> 429

<212> PRT

<213> Homo Sapiens

<400> 802

Met Ser Val Asn Val Asn Arg Ser Val Ser Asp Gln Phe Tyr Arg Tyr Lys Met Pro Arg Leu Ile Ala Lys Val Glu Gly Lys Gly Asn Gly Ile 25 Lys Thr Val Ile Val Asn Met Val Asp Val Ala Lys Ala Leu Asn Arg 40 Pro Pro Thr Tyr Pro Thr Lys Tyr Phe Gly Cys Glu Leu Gly Ala Gln 55 Thr Gln Phe Asp Val Lys Asn Asp Arg Tyr Ile Val Asn Gly Ser His Glu Ala Asn Lys Leu Gln Asp Met Leu Asp Gly Phe Ile Lys Lys Phe Val Leu Cys Pro Glu Cys Glu Asn Pro Glu Thr Asp Leu His Val Asn 105 Pro Lys Lys Gln Thr Ile Gly Asn Ser Cys Lys Ala Cys Gly Tyr Arg 120 Gly Met Leu Asp Thr His His Lys Leu Cys Thr Phe Ile Leu Lys Asn 135 140 Pro Pro Glu Asn Ser Asp Ile Gly Thr Gly Lys Lys Glu Lys Glu Lys 155

Lys Asn Arg Lys Gly Lys Asp Lys Glu Asn Gly Ser Val Ser Thr Ser

```
165
                                    170
                                                        175
Glu Thr Pro Pro Pro Pro Pro Pro Asn Glu Ile Ser Pro Pro His Ala
                                185
Val Glu Glu Glu Glu Asp Asp Trp Gly Glu Asp Thr Thr Glu Glu
                            200
Ala Gln Arg Arg Met Asp Glu Ile Ser Asp His Ala Lys Gly Leu
                                            220
Thr Leu Ser Asp Asp Leu Glu Arg Thr Val Glu Glu Arg Val Asn Ile
                    230
                                        235
Leu Phe Asp Phe Val Lys Lys Lys Glu Glu Gly Ile Ile Asp Ser
                245
                                    250
Ser Asp Lys Asp Ile Val Ala Glu Ala Glu Arg Leu Asp Val Lys Ala
                                265
Met Gly Pro Leu Val Leu Thr Glu Val Leu Phe Asp Glu Lys Ile Arg
                            280
                                                285
Glu Gln Ile Lys Lys Tyr Arg Arg His Phe Leu Arg Phe Cys His Asn
                        295
                                            300
Asn Lys Lys Ala Gln Arg Tyr Leu Leu His Gly Leu Glu Cys Val Val
                    310
                                        315
Ala Met His Gln Ala Gln Leu Ile Ser Lys Ile Pro His Ile Leu Lys
                325
                                    330
Glu Met Tyr Asp Ala Asp Leu Leu Glu Glu Glu Val Ile Ile Ser Trp
            340
                                345
                                                    350
Ser Glu Lys Ala Ser Lys Lys Tyr Val Ser Lys Glu Leu Ala Lys Glu
        355
                            360
Ile Arg Val Lys Ala Glu Pro Phe Ile Lys Trp Leu Lys Glu Ala Glu
                        375
Glu Glu Ser Ser Gly Gly Glu Glu Glu Asp Glu Asp Glu Asn Ile Glu
                    390
                                        395
Val Val Tyr Ser Lys Thr Ala Ser Val Pro Lys Val Glu Thr Val Lys
                                    410
Ser Asp Asn Lys Asp Asp Ile Asp Ile Asp Ala Ile
            420
                                425
      <210> 803
      <211> 2251
      <212> DNA
      <213> Homo Sapiens
      <400> 803
aggatgtett etggeaattt catataagta ttttteaaa aatgtetett etgteaacce
```

60 cacgeetttg geacaatgaa gtgggtaace tttattteee ttettttet etttageteg gettatteca ggggtgtgtt tegtegagat geacacaaga gtgaggttge teateggttt 180 aaaqatttgg gagaagaaaa tttcaaagcc ttggtgttga ttgcctttgc tcagtatctt 240 cagcagtgtc catttgaaga tcatgtaaaa ttagtgaatg aagtaactga atttgcaaaa 300 acatgtgtag ctgatgagtc agctgaaaat tgtgacaaat cacttcatac cctttttgga 360 gacaaattat gcacagttgc aactettegt gaaacetatg gtgaaatgge tgactgetgt 420 gcaaaacaag aacctgagag aaatgaatgc ttcttgcaac acaaagatga caacccaaac eteeecegat tggtgagacc agaggttgat gtgatgtgca etgettttca tgacaatgaa 540 gagacatttt tgaaaaaata cttatatgaa attgccagaa gacatcctta cttttatgcc 600 coggaactcc ttttctttgc taaaaggtat aaagctgctt ttacagaatg ttgccaagct 660 gctgataaag ctgcctgcct gttgccaaag ctcgatgaac ttcgggatga agggaaggct 720 tegtetgeca aacagagact caaatgtgee agtetecaaa aatttggaga aagagettte 780 aaagcatggg cagtggctcg cctgagccag agatttccca aagctgagtt tgcagaagtt 840 tocaagttag tgacagatct taccaaagtc cacacggaat gctgccatgg agatctgctt 900

```
gaatgtqctg atgacagggc ggaccttgcc aagtatatct gtgaaaatca ggattcgatc
                                                                      960
tccaqtaaac tgaaggaatg ctgtgaaaaa cctctgttgg aaaaatccca ctgcattgcc
                                                                     1020
gaagtggaaa atgatgagat geetgetgae ttgeetteat tagetgetga ttttgttgaa
                                                                     1080
agtaaggatg tttgcaaaaa ctatgctgag gcaaaggatg tcttcctggg catgtttttg
                                                                     1140
tatgaatatg caagaaggca tootgattac totgtogtgc tgotgctgag acttgccaag
                                                                     1200
acatatgaaa ccactctaga gaagtgetgt geegetgeag atectcatga atgetatgee
                                                                     1260
aaagtgttcg atgaatttaa acctcttgtg gaagagcctc agaatttaat caaacaaaac
                                                                     1320
tgtgagettt ttaageaget tggagagtae aaatteeaga atgegetatt agttegttae
accaagaaag taccccaagt gtcaactcca actcttgtag aggtctcaag aaacctagga
aaagtgggca gcaaatgttg taaacatcct gaagcaaaaa gaatgccctg tgcagaagac
                                                                    1500
tatetateeg tggteetgaa eeagttatgt gtgttgeatg agaaaaegee agtaagtgae
                                                                     1560
agagtcacaa aatgctgcac agagtccttg gtgaacaggc gaccatgctt ttcagctctg
                                                                     1620
gaagtegatg aaacatacgt teccaaagag tttaatgetg aaacatteac ettecatgea
                                                                     1680
gatatatqca cactttctga gaaggagaga caaatcaaga aacaaactgc acttqttqaq
                                                                    1740
cttgtgaaac acaagcccaa ggcaacaaaa gagcaactga aagctgttat ggatgatttc
geagettttg tagagaagtg etgeaagget gacgataagg agacetgett tgeegaggag
                                                                    1860
ggtaaaaaac ttgttgctgc aagtcaagct gccttaggct tataacatct acatttaaaa
gcatctcagc ctaccatgag aataagagaa agaaaatgaa gatcaaaagc ttattcatct
                                                                    1980
gttttctttt tcgttggtgt aaagccaaca ccctgtctaa aaaacataaa tttctttaat
                                                                    2040
cattttgcct cttttctctg tgcttcaatt aataaaaaat ggaaagaatc taatagagtg
                                                                    2100
gtacagcact gttatttttc aaagatgtgt tgctatcctq aaaattctqt aggttctgtg
gaagttccag tgttctctct tattccactt cggtagagga tttctagttt ctgtgggcta
                                                                    2220
attaaataaa tcactaatac tcttctaagt t
                                                                     2251
```

<210> 804 <211> 609 <212> PRT

<213> Homo Sapiens

<400> 804

Met Lys Trp Val Thr Phe Ile Ser Leu Leu Phe Leu Phe Ser Ser Ala 10 Tyr Ser Arg Gly Val Phe Arg Arg Asp Ala His Lys Ser Glu Val Ala His Arg Phe Lys Asp Leu Gly Glu Glu Asn Phe Lys Ala Leu Val Leu 40 Ile Ala Phe Ala Gln Tyr Leu Gln Gln Cys Pro Phe Glu Asp His Val Lys Leu Val Asn Glu Val Thr Glu Phe Ala Lys Thr Cys Val Ala Asp 70 75 Glu Ser Ala Glu Asn Cys Asp Lys Ser Leu His Thr Leu Phe Gly Asp 90 Lys Leu Cys Thr Val Ala Thr Leu Arg Glu Thr Tyr Gly Glu Met Ala 105 Asp Cys Cys Ala Lys Gln Glu Pro Glu Arg Asn Glu Cys Phe Leu Gln 120 His Lys Asp Asp Asn Pro Asn Leu Pro Arg Leu Val Arg Pro Glu Val 135 140 Asp Val Met Cys Thr Ala Phe His Asp Asn Glu Glu Thr Phe Leu Lys 150 155 Lys Tyr Leu Tyr Glu Ile Ala Arg Arg His Pro Tyr Phe Tyr Ala Pro 170 175 Glu Leu Leu Phe Phe Ala Lys Arg Tyr Lys Ala Ala Phe Thr Glu Cys

Cys Gln Ala Ala Asp Lys Ala Ala Cys Leu Leu Pro Lys Leu Asp Glu

		195					200					205			
Leu	Arg 210	Asp	Glu	Gly	Lys	Ala 215	Ser	Ser	Ala	Lys	Gln 220	Arg	Leu	Lys	Cys
Ala	Ser	Leu	Gln	Lys	Phe	Gly	${\tt Glu}$	Arg	Ala	Phe	Lys	Ala	Trp	Ala	Val
225					230					235					240
Ala	Arg	Leu	Ser	Gln 245	Arg	Phe	Pro	Lys	Ala 250	Glu	Phe	Ala	Glu	Val 255	Ser
Lys	Leu	Val	Thr 260	Asp	Leu	Thr	Lys	Val 265	His	Thr	Glu	Cys	Cys 270	His	Gly
Asp	Leu	Leu 275	Glu	Cys	Ala	Asp	Asp 280	Arg	Ala	Asp	Leu	Ala 285	Lys	Tyr	Ile
Cys	Glu 290	Asn	Gln	Asp	Ser	Ile 295	ser	Ser	Lys	Leu	Lys 300	Glu	Cys	Cys	G l u
Lys 305	Pro	Leu	Leu	Glu	Lys 310	Ser	His	Cys	Ile	Ala 315	Glu	Val	Glu	Asn	Asp 320
Glu	Met	Pro	Ala	Asp 325	Leu	Pro	Ser	Leu	Ala 330	Ala	Asp	Phe	Val	Glu 335	Ser
Lys	Asp	Val	Cys 340	Lys	Asn	Tyr	Ala	Glu 345	Ala	Lys	Asp	Val	Phe 350	Leu	Gly
Met	Phe	Leu 355	Tyr	Glu	Tyr	Ala	Arg 360	Arg	His	Pro	Asp	Tyr 365	Ser	Val	Val
Leu	Leu 370	Leu	Arg	Leu	Ala	Lys 375	Thr	Tyr	Glu	Thr	Thr 380	Leu	Glu	Lys	Cys
Cys 385	Ala	Ala	Ala	Asp	Pro 390	His	Glu	Cys	Tyr	Ala 395	Lys	Val	Phe	Asp	Glu 400
Phe	Lys	Pro	Leu	Val 405	Glu	Glu	Pro	Gln	Asn 410	Leu	Ile	Lys	Gln	Asn 415	Cys
			420					425					430	Leu	
		435					440					445		Leu	
	450					455			_		460	-	-	Lys	
Pro 465	Glu	Ala	Lys	Arg	Met 470	Pro	Cys	Ala	Glu	Asp 475	Tyr	Leu	Ser	Val	Val 480
				485					490					Asp 495	_
			500					505					510	Cys	
		515					520				_	525		Asn	
	530					535	_		-		540			Lys	
545					550					555				His	560
	-			565				-	570			-	-	Phe 575	
			580					585					590	Cys	
		Glu 595		Lys	Lys	Leu	Val		Ala	Ser	Gln	Ala 605	Ala	Leu	Gly
Leu															

<210> 805

1356

```
<211> 1356
<212> DNA
<213> Homo Sapiens
<400> 805
```

acaaacacca aggagtggag gtcagagtgt cacttttttg ttttcttttt gaaaqatcat 60 tegagaaaca egteactgat eteceetgeg accatgtett ecattaagat tgagtgtgtt 120 ttgccagaga actgccggtg tggtgagtct ccagtatggg aggaagtgtc caactctctg 180 ctctttgtag acattcctgc aaaaaaggtt tgccggtggg attcattcac caagcaagta cagegagtga ccatggatge eccagtcage teegtggete ttegecagte gqqaqqctat 300 gttgccacca ttggaacaaa gttctgtgct ttgaactgga aagaacaatc agcagttgtc 360 ttggccacgg tggataacga caagaaaaac aatcgcttca atgatgggaa ggtggatccc 420 geegggaggt actttgetgg caccatgget gaggaaacag etecagcagt tettqaqcqq 480 caccaggggg ccctgtactc cctctttcct gatcaccacg tgaaaaagta ctttqaccaq 540 gtggacattt ccaatggttt ggattggtcg ctagaccaca aaatcttcta ttacattgac agectgtect acteegtgga tgeetttgae tatgaeetge agacaggaea gateteeaac 660 cgcagaagtg tttacaagct agaaaaggaa gaacaaatcc cagatggaat gtgtattgat 720 gctgagggga agctctgggt ggcctgttac aatggaggaa gagtgattcg tttaqatcct gtgacaggga aaagacttca aactgtgaag ttgcctgttg ataaaacaac ttcatgctgc 840 tttggaggga agaattactc tgaaatgtat gtgacctgcg cccgggatgg gatggacccc 900 gagggtettt tgaggeaace tgaagetggt ggaattttea agataactqq tetqqqqqte aaaggaattg ctccctactc ctatgcggga tgaggacagg tcttctttcc tgccagaggg 1020 agetetgaag acaactagag aattetggge etgaaatte aatetagtta gaaagaaaaa 1080 tgaggcaatg attttattaa cagcgttaag ttttaattta caacttttaa aaggcagagc 1140 atttttaaca aggggtgaca ggtggttttg ataacacact tataaggctt tctgtaaaag 1200 gtactataga agggcgaaga atcgttcaac tgtcaatcag cctcttqatt ctttqtaaat 1260 tgccagggtg ggtgggtaca tatctcttct tgattctqca tttcatactt aactatatta 1320

<210> 806 <211> 299 <212> PRT

<213> Homo Sapiens

aagcttcaag gaacaataaa tagtaacctg gtaatg

<400> 806 Met Ser Ser Ile Lys Ile Glu Cys Val Leu Pro Glu Asn Cys Arg Cys Gly Glu Ser Pro Val Trp Glu Glu Val Ser Asn Ser Leu Leu Phe Val 25 Asp Ile Pro Ala Lys Lys Val Cys Arg Trp Asp Ser Phe Thr Lys Gln Val Gln Arg Val Thr Met Asp Ala Pro Val Ser Ser Val Ala Leu Arg 55 Gln Ser Gly Gly Tyr Val Ala Thr Ile Gly Thr Lys Phe Cys Ala Leu Asn Trp Lys Glu Gln Ser Ala Val Val Leu Ala Thr Val Asp Asn Asp 85 Lys Lys Asn Asn Arg Phe Asn Asp Gly Lys Val Asp Pro Ala Gly Arg 105 Tyr Phe Ala Gly Thr Met Ala Glu Glu Thr Ala Pro Ala Val Leu Glu 120 Arg His Gln Gly Ala Leu Tyr Ser Leu Phe Pro Asp His His Val Lys 135 Lys Tyr Phe Asp Gln Val Asp Ile Ser Asn Gly Leu Asp Trp Ser Leu 145 155

```
Asp His Lys Ile Phe Tyr Tyr Ile Asp Ser Leu Ser Tyr Ser Val Asp
                165
                                    170
Ala Phe Asp Tyr Asp Leu Gln Thr Gly Gln Ile Ser Asn Arg Arg Ser
                                185
Val Tyr Lys Leu Glu Lys Glu Glu Gln Ile Pro Asp Gly Met Cys Ile
                            200
Asp Ala Glu Gly Lys Leu Trp Val Ala Cys Tyr Asn Gly Gly Arg Val
                        215
Ile Arg Leu Asp Pro Val Thr Gly Lys Arg Leu Gln Thr Val Lys Leu
                    230
Pro Val Asp Lys Thr Thr Ser Cys Cys Phe Gly Gly Lys Asn Tyr Ser
                                     250
                                                         255
Glu Met Tyr Val Thr Cys Ala Arg Asp Gly Met Asp Pro Glu Gly Leu
                                 265
Leu Arg Gln Pro Glu Ala Gly Gly Ile Phe Lys Ile Thr Gly Leu Gly
Val Lys Gly Ile Ala Pro Tyr Ser Tyr Ala Gly
                        295
```

<210> 807 <211> 1980

<212> DNA

<213> Homo Sapiens

<400> 807

```
atgccaagta gtttgctgct agcaaccaga aaccaaatcc tgtctatqat qaactqttqq
                                                                      60
ttttcttgtg ctcccaagaa cagacatgca gcagattgga acaaatatga tgaccgattg
                                                                      120
atgaaagccg cggagagggg agatgtagaa aaagtttcct caatccttgc taaaaagggc
                                                                      180
atcaatccag gcaaactaga tgtggaaggc agatctgcct tccatgttgt ggcctcaaag
gggaatettg aatgtttgaa tgccateett atacatggag ttgatattac aaccagtgac
                                                                      300
actgcaggaa gaaatgctct tcacttggct gcaaagtatg ggcatgcatt gtgtctacaa
                                                                      360
aaacttctac agtacaattg tcccactgaa catgcagacc tgcagggaag aaccgcactt
                                                                      420
catgacgcag caatggcaga ctgtccttcc agcatacagc tgctttgtqa ccatqqqqcc
                                                                      480
teegtgaatg ccaaagatgt ggatgggegg acaecqetqq ttetqqetac teaqatqtqt
                                                                      540
aggccagcaa tctgtcaact gctgatagat cgaggggcag agattaattc cagagacaaa
                                                                      600
caaaacagaa ctgctctcat gettggttge gagtatggtt gtaaggatge tgtagaagte
ttacttaaaa atggtgctga tgtaagcctg ctggatgcct tgggccatga tagttcttac
                                                                      720
tatgcaagaa ttggtgacaa tctggacatt ctaactttat tgaagactgc gtcagaaaat
                                                                      780
accaacaaag ggagagaact ttggaagaaa ggaccatctt tacagcagcg aaatttgccg
                                                                      840
tacatgctag atgaagtaaa tgtgaagtca aqtcaqaqqq aqcatcqaaa cattcaqqaq
                                                                      900
ctggagattg aaaatgaaga tttgaaaqac aqqttqaqaa aaattcaqca aqaacaqaqa
                                                                      960
atattactgg ataaagtcaa tggtttacaa ctacagctga atgaggaagt gatggttgct
                                                                     1020
gatgatctgg aaagtgagaa agaaaagctg aagtctcttt tggtggctaa agaaaagcaa
                                                                     1080
catgaagaaa goctaagaac tattgagtot otgaaaaaca gatttaaata ttttgagtgt
                                                                     1140
acttccccag gggtgccagc ccacatgcaa agcaggtcta tgttaagacc actggagcta
                                                                     1200
tcattaccca atcaaacctc atattetgaa aatgacctct taaagaaaga gttagaagca
                                                                     1260
atgagaactt tetgegaate agecaaacaa gaeegeetea ageteeagaa eggagtggeg
                                                                     1320
cacaaggtgg ctgagtgcaa agctttagga ctagaatgtg aacgcatcaa ggaggactct
                                                                     1380
gatgagcaga taaagcagtt agaagacgca ttgaaaqatq tqcaqaaqaq aatqtatqaq
toggaaggta aagtaaaaca aatgoagaca cactttottg coottaaaga goacotgaco
agtgaagcag ctatagggaa tcacagacta atggaggagc tgaaggatca gttgaaggac
                                                                    1560
atgaaagcga aatatgaggg tgcatcagca gaagtgggaa aactgcgaaa ccaaatcaaa
caaaatgagc tgctagtaga acagtttagg agagatgaag gcaagctggt ggaagagaat
                                                                     1680
aagcgattgc agaaggaact cagtatgtgt gaaacggagc gagacaagaa aggaaggagg
                                                                     1740
gttgctgagg tggaaggcca ggtaaaggaa ctcttagcaa agctgacctt gtcagttcca
                                                                     1800
```

actgaaaaat ttgagagcat gaagagctta ttatcaagcg aagtaaatga gaaggtgaaa 1860 aaaattggag agacagaaag agagtatgaa āaatcactta ctgaaatcag acagttaagg 1920 agagagcttg agaattgtaa gcgccaaact tcctcagcat gtcaagccag aggagcatga 1980

<210> 808 <211> 659

<212> PRT <213> Homo Sapiens

<400> 808

Met Pro Ser Ser Leu Leu Leu Ala Thr Arg Asn Gln Ile Leu Ser Met 1 5 10 15 Met Asn Cys Trp Phe Ser Cys Ala Pro Lys Asn Arg His Ala Ala Asp 20 25 30 Trp Asn Lys Tyr Asn Asn Arg Leu Met Lys Ala Ala Glu Arg Gly Asn

Trp Asn Lys Tyr Asp Asp Arg Leu Met Lys Ala Ala Glu Arg Gly Asp
35 40 45

Val Glu Lys Val Ser Ser Ile Leu Ala Lys Lys Gly Ile Asn Pro Gly
50
60
Lys Leu Asp Val Glu Gly Arg Ser Ala Phe His Val Val Ala Ser Lys
65
70
75
80
Gly Asn Leu Glu Cys Leu Asn Ala Ile Leu Ile His Gly Val Asp Ile

Gly Asn Leu Glu Cys Leu Asn Ala Ile Leu Ile His Gly Val Asp Ile 85 Thr Thr Ser Asp Thr Ala Gly Arg Asn Ala Leu His Leu Ala Ala Lys

100 105 110 Tyr Gly His Ala Leu Cys Leu Gln Lys Leu Leu Gln Tyr Asn Cys Pro

115 120 125 Thr Glu His Ala Asp Leu Gln Gly Arg Thr Ala Leu His Asp Ala Ala 130 135 140

Met Ala Asp Cys Pro Ser Ser Ile Gln Leu Leu Cys Asp His Gly Ala 145 150 165 168 Ser Val Asn Ala Lys Asp Val Asp Gly Arg Thr Pro Leu Val Leu Ala

165 170 175 Thr Gln Met Cys Arg Pro Ala Ile Cys Gln Leu Leu Ile Asp Arg Gly 180 185 190

Ala Glu Ile Asn Ser Arg Asp Lys Gln Asn Arg Thr Ala Leu Met Leu 195 200 205

Gly Cys Glu Tyr Gly Cys Lys Asp Ala Val Glu Val Leu Leu Lys Asn 210 215 Gly Ala Asp Val Ser Leu Leu Asp Ala Leu Gly His Asp Ser Ser Tyr

Tyr Ala Arg Ile Gly Asp Asn Leu Asp Ile Leu Thr Leu Leu Lys Thr 240 255

Ala Ser Glu Asn Thr Asn Lys Gly Arg Glu Leu Trp Lys Lys Gly Pro 265 270 Ser Leu Gln Gln Arg Asn Leu Pro Tyr Met Leu Asp Glu Val Asn Val

275 280 285 Lys Ser Ser Gln Arg Glu His Arg Asn Ile Gln Glu Leu Glu Ile Glu 290 295 300

Asm Glu Asp Leu Lys Asp Arg Leu Arg Lys Ile Gln Gln Glu Gln Arg 305 310 320 Ile Leu Leu Asp Lys Val Asn Gly Leu Gln Leu Gln Leu Asn Glu Glu

325 330 335
Val Met Val Ala Asp Asp Leu Glu Ser Glu Lys Glu Lys Leu Lys Ser

\$340\$ Leu Leu Val Ala Lys Glu Lys Gln His Glu Glu Ser Leu Arg Thr Ile

```
360
                                                365
Glu Ser Leu Lys Asn Arg Phe Lys Tyr Phe Glu Cys Thr Ser Pro Gly
                       375
                                            380
Val Pro Ala His Met Gln Ser Arg Ser Met Leu Arg Pro Leu Glu Leu
                   390
                                        395
Ser Leu Pro Asn Gln Thr Ser Tyr Ser Glu Asn Asp Leu Leu Lys Lys
               405
                                    410
Glu Leu Glu Ala Met Arg Thr Phe Cys Glu Ser Ala Lys Gln Asp Arg
                                425
Leu Lys Leu Gln Asn Gly Val Ala His Lys Val Ala Glu Cys Lys Ala
                            440
Leu Gly Leu Glu Cys Glu Arg Ile Lys Glu Asp Ser Asp Glu Gln Ile
                        455
Lys Gln Leu Glu Asp Ala Leu Lys Asp Val Gln Lys Arg Met Tyr Glu
                    470
                                        475
Ser Glu Gly Lys Val Lys Gln Met Gln Thr His Phe Leu Ala Leu Lys
                                    490
Glu His Leu Thr Ser Glu Ala Ala Ile Gly Asn His Arg Leu Met Glu
           500
                                505
Glu Leu Lys Asp Gln Leu Lys Asp Met Lys Ala Lys Tyr Glu Gly Ala
                            520
Ser Ala Glu Val Gly Lys Leu Arg Asn Gln Ile Lys Gln Asn Glu Leu
                                            540
Leu Val Glu Gln Phe Arg Arg Asp Glu Gly Lys Leu Val Glu Glu Asn
                    550
                                        555
Lys Arq Leu Gln Lys Glu Leu Ser Met Cys Glu Thr Glu Arg Asp Lys
                                    570
Lys Gly Arg Arg Val Ala Glu Val Glu Gly Gln Val Lys Glu Leu Leu
                                585
Ala Lys Leu Thr Leu Ser Val Pro Thr Glu Lys Phe Glu Ser Met Lys
                            600
Ser Leu Leu Ser Ser Glu Val Asn Glu Lys Val Lys Lys Ile Gly Glu
                        615
Thr Glu Arg Glu Tyr Glu Lys Ser Leu Thr Glu Ile Arg Gln Leu Arg
                   630
                                       635
Arg Glu Leu Glu Asn Cys Lys Arg Gln Thr Ser Ser Ala Cys Gln Ala
               645
                                    650
```

<210> 809

Arg Gly Ala

<211> 1725

<212> DNA

<213> Homo Sapiens

<400> 809

tttctttgtt aagtcgttcc ctctacaaag gacttcctag tgggtgtgaa aggcagcggt 60 ggccacagag geggeggaga gatggeette ageggtteee aggeteeeta cetgagteea getgteecet tttetgggae tatteaagga ggteteeagg acggaettea gateaetgte 180 aatgggaccg ttctcagctc cagtggaacc aggtttgctg tgaactttca gactggcttc 240 agtggaaatg acattgcctt ccacttcaac cctcggtttq aaqatqqaqq qtacqtqqtq 300 tgcaacacga ggcagaacgg aagctggggg cccgaggaga ggaagacaca catgcctttc 360 cagaagggga tgccctttga cctctgcttc ctggtgcaga gctcagattt caaggtgatq 420 gtgaacggga tectettegt geagtactte caeegegtge cettecaeeg tgtggacaee 480 atctccgtca atggctctgt gcagctgtcc tacatcagct tccagaaccc ccgcacagtc 540

cctgttcagc	ctgccttctc	cacggtgccg	ttctcccagc	ctgtctgttt	cccacccagg	600
cccagggggc	gcagacaaaa	acctcccggc	gtgtggcctg	ccaacccggc	tcccattacc	660
cagacagtca	tccacacagt	gcagagcgcc	cctggacaga	tgttctctac	tecegecate	720
ccacctatga	tgtaccccca	ccccgcctat	ccgatgcctt	tcatcaccac	cattctggga	780
gggctgtacc	catccaagtc	catcctcctg	tcaggcactg	tcctgcccag	tgctcagagg	840
ttccacatca	acctgtgctc	tgggaaccac	atcgccttcc	acctgaaccc	ccgttttgat	900
gagaatgctg	tggtccgcaa	cacccagatc	gacaactcct	gggggtctga	ggagcgaagt	960
ctgccccgaa	aaatgccctt	cgtccgtggc	cagagettet	cagtgtggat	cttgtgtgaa	1020
gctcactgcc	tcaaggtggc	cgtggatggt	cagcacctgt	ttgaatacta	ccatcgcctg	1080
aggaacctgc	ccaccatcaa	cagactggaa	gtggggggcg	acatccagct	gacccatgtg	1140
cagacatagg	cggcttcctg	gccctggggc	cgggggctgg	ggtgtggggc	agtctgggtc	1200
ctctcatcat	ccccacttcc	caggcccagc	ctttccaacc	ctgcctggga	tctgggcttt	126
aatgcagagg	ccatgtcctt	gtctggtcct	gcttctggct	acagccaccc	tggaacggag	1320
aa g gcagctg	acggggattg	ccttcctcag	ccgcagcagc	acctggggct	ccagctgctg	138
gaatcctacc	atcccaggag	gcaggcacag	ccagggagag	gggaggagtg	ggcagtgaag	1440
atgaagcccc	atgctcagtc	ccctcccatc	ccccacgcag	ctccacccca	gtcccaagcc	1500
accagctgtc	tgctcctggt	gggaggtggc	ctcctcagcc	cctcctctct	gacctttaac	1560
ctcactctca	ccttgcaccg	tgcaccaacc	cttcacccct	cctggaaagc	aggcctgatg	162
gcttcccact	ggcctccacc	acctgaccag	agtgttctct	tcagaggact	ggctcctttc	1680
ccaqtqtcct	taaaataaaq	aaatgaaaat	acttattage	acatt		1725

<210> 810 <211> 355 <212> PRT

<213> Homo Sapiens

<400> 810

Met Ala Phe Ser Gly Ser Gln Ala Pro Tyr Leu Ser Pro Ala Val Pro 10 Phe Ser Gly Thr Ile Gln Gly Gly Leu Gln Asp Gly Leu Gln Ile Thr Val Asn Gly Thr Val Leu Ser Ser Ser Gly Thr Arg Phe Ala Val Asn 40 Phe Gln Thr Gly Phe Ser Gly Asn Asp Ile Ala Phe His Phe Asn Pro 55 60 Arg Phe Glu Asp Gly Gly Tyr Val Val Cys Asn Thr Arg Gln Asn Gly 70 75 Ser Trp Gly Pro Glu Glu Arg Lys Thr His Met Pro Phe Gln Lys Gly 85 90 Met Pro Phe Asp Leu Cys Phe Leu Val Gln Ser Ser Asp Phe Lys Val 105 Met Val Asn Gly Ile Leu Phe Val Gln Tyr Phe His Arg Val Pro Phe 120 His Arg Val Asp Thr Ile Ser Val Asn Gly Ser Val Gln Leu Ser Tyr 135 140 Ile Ser Phe Gln Asn Pro Arg Thr Val Pro Val Gln Pro Ala Phe Ser 150 155 Thr Val Pro Phe Ser Gln Pro Val Cys Phe Pro Pro Arg Pro Arg Gly 165 170 Arg Arg Gln Lys Pro Pro Gly Val Trp Pro Ala Asn Pro Ala Pro Ile 185 Thr Gln Thr Val Ile His Thr Val Gln Ser Ala Pro Gly Gln Met Phe 200 Ser Thr Pro Ala Ile Pro Pro Met Met Tyr Pro His Pro Ala Tyr Pro

215

```
Met Pro Phe Ile Thr Thr Ile Leu Gly Gly Leu Tyr Pro Ser Lys Ser
                    230
                                        235
Ile Leu Leu Ser Gly Thr Val Leu Pro Ser Ala Gln Arg Phe His Ile
                                    250
Asn Leu Cys Ser Gly Asn His Ile Ala Phe His Leu Asn Pro Arg Phe
                                265
Asp Glu Asn Ala Val Val Arg Asn Thr Gln Ile Asp Asn Ser Trp Gly
                            280
Ser Glu Glu Arg Ser Leu Pro Arg Lys Met Pro Phe Val Arg Gly Gln
Ser Phe Ser Val Trp Ile Leu Cys Glu Ala His Cys Leu Lys Val Ala
                    310
                                        315
Val Asp Gly Gln His Leu Phe Glu Tyr Tyr His Arg Leu Arg Asn Leu
                                    330
Pro Thr Ile Asn Arg Leu Glu Val Gly Gly Asp Ile Gln Leu Thr His
Val Gln Thr
       355
      <210> 811
      <211> 1022
      <212> DNA
      <213> Homo Sapiens
      <400> 811
gcctgtgggt ctccattgcc cagcttttqc ctqcactctt qcctqctqcc ctqaccagag
                                                                       60
tcatcatgtc tcttgagcag aagagtcagc actgcaagcc tgaggaaggc gttgaggccc
                                                                      120
aagaagaggc cctgggcctg gtgggtgcac aggctcctac tactgaggag caggaggctg
ctgtctcctc ctcctctcct ctggtcctgg gcaccctgga gaaaqtqcct qctqctqaqt
                                                                      240
cagcagatec tecceagagt ceteagggag cetetgeett acceaetace ateagettea
                                                                      300
cttgctggag gcaacccaat gagggttcca gcaqccaaqa agaggaggag gcaqcacct
                                                                      360
egectgaege agagteettg tteegagaag caeteagtaa caaggtggat gagttggete
attttctgct ccgcaagtat cgagccaagg agctggtcac aaaggcagaa atgctggaga
gagtcatcaa aaattacaag cgctgctttc ctgtgatctt cggcaaagcc tccgagtccc
                                                                      540
tgaagatgat ctttggcatt gacgtgaagg aagtggaccc cgccagcaac acctacaccc
                                                                      600
ttgtcacctg cctgggcctt tcctatgatg gcctgctggg taataatcag atctttccca
agacaggeet cetgataate gteetgggea caattgeaat qqaqqqeqae ageqeetetg
                                                                      720
aggaggaaat ctgggaggag ctgggtgtga tgggggtgta tgatgggagg gagcacactg
                                                                      780
tctatgggga gcccaggaaa ctgctcaccc aagattgggt gcaggaaaac tacctggaqt
acceggcaggt acceggcagt aatcetgege getatgagtt cetgtggggt ceaaqqqete
                                                                      900
tggctgaaac cagctatgtg aaagtcctgg agcatgtggt cagggtcaat gcaagagttc
                                                                      960
gcattgccta cccatccctg cgtgaagcag ctttgttaga ggaggaagag ggagtctgag
                                                                     1020
ca
                                                                     1022
      <210> 812
      <211> 317
      <212> PRT
      <213> Homo Sapiens
      <400> 812
```

Met Ser Leu Glu Gln Lys Ser Gln His Cys Lys Pro Glu Glu Gly Val 1 5 10 15 Glu Ala Gln Glu Glu Ala Leu Gly Leu Val Gly Ala Gln Ala Pro Thr 20 25 30

Thr Glu Glu Glu Ala Ala Val Ser Ser Ser Pro Leu Val Leu

WO 99/04265 PCT/US98/14679

```
40
Gly Thr Leu Glu Lys Val Pro Ala Ala Glu Ser Ala Asp Pro Pro Gln
                        55
Ser Pro Gln Gly Ala Ser Ala Leu Pro Thr Thr Ile Ser Phe Thr Cys
                                        75
Trp Arg Gln Pro Asn Glu Gly Ser Ser Ser Gln Glu Glu Glu Glu Ala
                                    90
Ser Thr Ser Pro Asp Ala Glu Ser Leu Phe Arg Glu Ala Leu Ser Asn
            100
                                105
                                                    110
Lys Val Asp Glu Leu Ala His Phe Leu Leu Arg Lys Tyr Arg Ala Lys
                            120
                                                125
Glu Leu Val Thr Lys Ala Glu Met Leu Glu Arg Val Ile Lys Asn Tyr
                        135
                                            140
Lys Arg Cys Phe Pro Val Ile Phe Gly Lys Ala Ser Glu Ser Leu Lys
                   150
                                        155
Met Ile Phe Gly Ile Asp Val Lys Glu Val Asp Pro Ala Ser Asn Thr
                165
                                    170
Tyr Thr Leu Val Thr Cys Leu Gly Leu Ser Tyr Asp Gly Leu Leu Gly
                                185
                                                    190
Asn Asn Gln Ile Phe Pro Lys Thr Gly Leu Leu Ile Ile Val Leu Gly
                                                205
Thr Ile Ala Met Glu Gly Asp Ser Ala Ser Glu Glu Glu Ile Trp Glu
                        215
Glu Leu Gly Val Met Gly Val Tyr Asp Gly Arg Glu His Thr Val Tyr
                    230
                                        235
Gly Glu Pro Arg Lys Leu Leu Thr Gln Asp Trp Val Gln Glu Asn Tyr
                245
                                    250
Leu Glu Tyr Arg Gln Val Pro Gly Ser Asn Pro Ala Arg Tyr Glu Phe
                                265
Leu Trp Gly Pro Arg Ala Leu Ala Glu Thr Ser Tyr Val Lys Val Leu
                            280
Glu His Val Val Arg Val Asn Ala Arg Val Arg Ile Ala Tyr Pro Ser
                        295
                                            300
Leu Arg Glu Ala Ala Leu Leu Glu Glu Glu Glu Gly Val
                    310
```

<210> 813 <211> 5175

<212> DNA

<213> Homo Sapiens

<400> 813

```
getgetgetg cagtgggaca ggtggeggeg aceggeggeg teegaggaga tttaateeag
agactgactt cactatagaa cccacagttg tatcaatggt tggggaaaga tagtggcaac
aggcaaagga gaaacagctc tgacatacaa agaaaatgag tatgctaaag ccaagtggge
ttaaggcccc caccaagatc ctgaagcctg gaagcacagc tctgaagaca cctacgqctq
ttgtagctcc agtagaaaaa accatatcca gtgaaaaagc atcaagcact ccatcatctg
agactcagga ggaatttgtg gatgactttc gagttgggga gcgagtttgg gtgaatggaa
ataagcctgg atttatccag tttcttggag aaacccagtt tgcaccaggc cagtgggctg
                                                                      420
gaattgtttt agatgaaccc ataggcaaga acgatggttc ggtggcagga gttcggtatt
                                                                      480
tecagtgtga acctttaaag ggcatattta cccgaccttc aaagttaaca aggaaggtgc
                                                                      540
aagcagaaga tgaagctaat ggcctgcaga caacgcccgc ctcccgagct acttcaccgc
                                                                      600
tgtgcacttc tacggccagc atggtgtctt cctccccctc caccccttca aacatccctc
agaaaccatc acagccagca gcaaaggaac cttcagctac gcctccgatc agcaacctta
                                                                      720
caaaaactgc cagtgaatct atctccaacc tttcagaggc tggctcaatc aagaaaggag
                                                                      780
```

			tggttggtgg			840
			gggagtggtg			900
			gaacaaggta			960
			ccaagattgg			1020
ccaaagccaa	ggccaacgca	gtgaggcgag	tgatggcgac	cacgtccgcc	agcctgaagc	1080
gcagcccttc	tgcctcttcc	ctcagctcca	tgagctcagt	ggcctcctct	gtgagcagca	1140
ggcccagtcg	gacaggacta	ttgactgaaa	cctcctcccg	ttacgccagg	aagatctccg	1200
gtaccactgc	cctccaggag	gccctgaagg	agaagcagca	gcacattgag	cagctgctgg	1260
cggaacggga	tctggagagg	gcggaggtgg	ccaaggccac	gagccacgtg	ggggagatag	1320
agcaggagct	agctctggcc	cgggacggac	atgaccagca	tgtcctggaa	ttggaagcca	1380
aaatggacca	gctgcgaaca	atggtggaag	ctgctgacag	ggagaaggtg	gagcttctca	1440
accagcttga	agaggagaaa	aggaaggttg	aggaccttca	gttccgggtt	gaagaagaat	1500
caattaccaa	aggtgatctt	gaggtggcta	cagtttcaga	aaagtcacgt	ataatggaac	1560
tggagaaaga	cctagcattg	agagtacagg	aagtagctga	gctccgaaga	aggctagagt	1620
ccaataagcc	tgctggggat	gtggacatgt	cactttccct	tttgcaagag	ataagctctt	1680
tgcaagaaaa	gttagaagtc	acccgtactg	accaccagag	agaaataact	tctctgaagg	1740
agcattttgg	agcccgggaa	gaaactcatc	agaaggagat	aaaggctctg	tataccgcca	1800
			tgaaaagcaa			1860
agaactcaga	tgtgataget	ctatggaagt	ccaaactgga	gactgccatc	gcateccace	1920
agcaggcgat	ggaagaactg	aaggtatctt	tcagcaaagg	gcttggaaca	gagacggcag	1980
			aaatgagact			2040
aaaatttgca	gaatcaacaa	gactctgaac	gggctgccca	tgctaaagag	atggaageet	2100
			aaaaggaaaa			2160
			tcgtagaaat			2220
tacaggaagc	tgaaataaag	gtaaaggagc	tagaggtact	gcaagccaaa	tgcaatgaac	2280
			agctcaaggc			2340
			aaggtaaatc			2400
			aacatttaga			2460
			tccaggggag			2520
			tgaaagagac			2580
			aggaggcagt			2640
			aggaacagtt			2700
			tggaggcaaa			2760
			aactggaaaa			2820
			caaaaatgaa			2880
			ttacaaaggc			2940
			aagctgaaca			3000
			agaggaaatt			3060
			tgaaagccag			3120
			agaacctcca			3180
			acagtggctt			3240
			ctcaaacagc			3300
			ctctggcctc			3360
			cacttaaaga			3420
			ctgtagagaa			3480
			cagctcagaa			3540
			agctggggag			3600
			tgctcaataa			3660
			atgaagagaa			3720
			aggatgccga			3780
			ctgccaagtc			3840
			tcaaggtaaa			3900
					gcagacgagg	3960
			tcctaaattc			4020
					ctgaatggga	4080
Janagaabea		94499199	agacgacgtc	agaagcagcc	ccyaacyyga	4000

acggggatga cctaaacaat tatgacagtg atgatcagga gaaacagtcc aagaagaaac ctegectett etgtgacatt tgtgactget ttgateteca egacacagag gattqteeta cccaggcaca gatgtcagag gaccetecce attecacaca ccatggcagt eggggtgagg 4260 aacgcccata ctgtgaaatc tgtgagatgt ttggacactg ggccaccaac tgcaatgacg 4320 acgaaacctt ctgatgaagc ctccagtgga gaactgggct tgctcagacg cactcgcatt 4380 gacacaacgt aacaccagca ttgtgtgtgc agacttcagg agaactcatg ttatttttta 4440 accordicae caeatctagg aaaatatttt gatottoaac aaattgooot ttagtotooc 4500 cqtatqaqtt aqaataataa atatttaqta qqtqaqcttt tcacctcqaa ttttqttttc ttgattttta cgtttgaaga cattgcacca gatgcsatta catttattgg ccccccgacc 4620 ttgtagaaaa accectaccc tcacaatacc ttatttaagt aactttaaat tatgccgtta 4680 cttttcatat ttgcactaag atatttccag gctgcatttg tatatttaga ttttttggtt 4740 aagctttgac actggaatga gttgaaaaaa tgtgccattt tgcattttca tctactcatt 4800 taaagtattt tattettatt caaagaaata tetgagetet ttgcactace tgttateagt 4860 agtgccttta cttcaggctt gataatactt aggtgtgatt ataaaatcat gaagcaqqta 4920 aagggagggg caagccccca aactgctgtg gggacatttt ataatctata tgctgcaccc 4980 acttaatcta ctgtggtgtt ttgtttatta gttttgcata atttcagctt ctatatattg 5040 tatqtatata ttttttaaaa atctatattt tqqqaaaaaa acatacacaa tqtqtctttc 5100 tttttggaca tttacctttt tgaaaaagaa aacacttaaa atgatcatta ggacataaca 5160 gactagggaa ttccg 5175

<210> 814 <211> 1392 <212> PRT

<213> Homo Sapiens

<400> 814 Met Ser Met Leu Lys Pro Ser Gly Leu Lys Ala Pro Thr Lys Ile Leu 10 Lys Pro Gly Ser Thr Ala Leu Lys Thr Pro Thr Ala Val Val Ala Pro 30 Val Glu Lys Thr Ile Ser Ser Glu Lys Ala Ser Ser Thr Pro Ser Ser 35 40 Glu Thr Gln Glu Glu Phe Val Asp Asp Phe Arg Val Gly Glu Arg Val 55 Trp Val Asn Gly Asn Lys Pro Gly Phe Ile Gln Phe Leu Gly Glu Thr 65 70 75 Gin Phe Ala Pro Gly Gln Trp Ala Gly Ile Val Leu Asp Glu Pro Ile 90 85 Gly Lys Asn Asp Gly Ser Val Ala Gly Val Arg Tyr Phe Gln Cys Glu 105 Pro Leu Lys Gly Ile Phe Thr Arg Pro Ser Lys Leu Thr Arg Lys Val 120 Gln Ala Glu Asp Glu Ala Asn Gly Leu Gln Thr Thr Pro Ala Ser Arg 135 140 Ala Thr Ser Pro Leu Cys Thr Ser Thr Ala Ser Met Val Ser Ser Ser 150 155 Pro Ser Thr Pro Ser Asn Ile Pro Gln Lys Pro Ser Gln Pro Ala Ala 165 170 Lys Glu Pro Ser Ala Thr Pro Pro Ile Ser Asn Leu Thr Lys Thr Ala 185 190 Ser Glu Ser Ile Ser Asn Leu Ser Glu Ala Gly Ser Ile Lys Lys Gly 200 Glu Arg Glu Leu Lys Ile Gly Asp Arg Val Leu Val Gly Gly Thr Lys

215 220 210 Ala Gly Val Val Arg Phe Leu Gly Glu Thr Asp Phe Ala Lys Gly Glu 230 235 Trp Cys Gly Val Glu Leu Asp Glu Pro Leu Gly Lys Asn Asp Gly Ala 245 250 Val Ala Gly Thr Arg Tyr Phe Gln Cys Gln Pro Lys Tyr Gly Leu Phe 260 265 Ala Pro Val His Lys Val Thr Lys Ile Gly Phe Pro Ser Thr Thr Pro 280 Ala Lys Ala Lys Ala Asn Ala Val Arg Arg Val Met Ala Thr Thr Ser 295 Ala Ser Leu Lys Arg Ser Pro Ser Ala Ser Ser Leu Ser Ser Met Ser 310 315 Ser Val Ala Ser Ser Val Ser Ser Arg Pro Ser Arg Thr Gly Leu Leu 330 Thr Glu Thr Ser Ser Arg Tyr Ala Arg Lys Ile Ser Gly Thr Thr Ala 340 345 Leu Gln Glu Ala Leu Lys Glu Lys Gln Gln His Ile Glu Gln Leu Leu 360 Ala Glu Arg Asp Leu Glu Arg Ala Glu Val Ala Lys Ala Thr Ser His 375 380 Val Gly Glu Ile Glu Gln Glu Leu Ala Leu Ala Arg Asp Gly His Asp 390 395 Gln His Val Leu Glu Leu Glu Ala Lys Met Asp Gln Leu Arg Thr Met 410 Val Glu Ala Ala Asp Arg Glu Lys Val Glu Leu Leu Asn Gln Leu Glu 425 Glu Glu Lys Arg Lys Val Glu Asp Leu Gln Phe Arg Val Glu Glu Glu 440 Ser Ile Thr Lys Gly Asp Leu Glu Val Ala Thr Val Ser Glu Lys Ser 455 460 Arg Ile Met Glu Leu Glu Lys Asp Leu Ala Leu Arg Val Gln Glu Val 470 475 Ala Glu Leu Arg Arg Leu Glu Ser Asn Lys Pro Ala Gly Asp Val 485 490 Asp Met Ser Leu Ser Leu Gln Glu Ile Ser Ser Leu Gln Glu Lys 505 Leu Glu Val Thr Arg Thr Asp His Gln Arg Glu Ile Thr Ser Leu Lys 520 Glu His Phe Gly Ala Arg Glu Glu Thr His Gln Lys Glu Ile Lys Ala 535 540 Leu Tyr Thr Ala Thr Glu Lys Leu Ser Lys Glu Asn Glu Ser Leu Lys 555 Ser Lys Leu Glu His Ala Asn Lys Glu Asn Ser Asp Val Ile Ala Leu 565 570 Trp Lys Ser Lys Leu Glu Thr Ala Ile Ala Ser His Gln Gln Ala Met 585 Glu Glu Leu Lys Val Ser Phe Ser Lys Gly Leu Gly Thr Glu Thr Ala 600 Glu Phe Ala Glu Leu Lys Thr Gln Ile Glu Lys Met Arg Leu Asp Tyr 615 620 Gln His Glu Ile Glu Asn Leu Gln Asn Gln Gln Asp Ser Glu Arg Ala 635 Ala His Ala Lys Glu Met Glu Ala Leu Arg Ala Lys Leu Met Lys Val 650

Ile Lys Glu Lys Glu Asn Ser Leu Glu Ala Ile Arg Ser Lys Leu Asp 665 Lys Ala Glu Asp Gln His Leu Val Glu Met Glu Asp Thr Leu Asn Lys 680 Leu Gln Glu Ala Glu Ile Lys Val Lys Glu Leu Glu Val Leu Gln Ala 695 Lys Cys Asn Glu Gln Thr Lys Val Ile Asp Asn Phe Thr Ser Gln Leu 710 715 Lys Ala Thr Glu Glu Lys Leu Leu Asp Leu Asp Ala Leu Arg Lys Ala 725 730 Ser Ser Glu Gly Lys Ser Glu Met Lys Lys Leu Arg Gln Gln Leu Glu 745 Ala Ala Glu Lys Gln Ile Lys His Leu Glu Ile Glu Lys Asn Ala Glu 760 Ser Ser Lys Ala Ser Ser Ile Thr Arg Glu Leu Gln Gly Arg Glu Leu 775 Lys Leu Thr Asn Leu Gln Glu Asn Leu Ser Glu Val Ser Gln Val Lys 790 795 Glu Thr Leu Glu Lys Glu Leu Gln Ile Leu Lys Glu Lys Phe Ala Glu 805 810 Ala Ser Glu Glu Ala Val Ser Val Gln Arg Ser Met Gln Glu Thr Val 825 Asn Lys Leu His Gln Lys Glu Glu Gln Phe Asn Met Leu Ser Ser Asp 840 845 Leu Glu Lys Leu Arg Glu Asn Leu Ala Asp Met Glu Ala Lys Phe Arg 855 860 Glu Lys Asp Glu Arg Glu Glu Gln Leu Ile Lys Ala Lys Glu Lys Leu 870 875 Glu Asn Asp Ile Ala Glu Ile Met Lys Met Ser Gly Asp Asn Ser Ser 890 885 Gln Leu Thr Lys Met Asn Asp Glu Leu Arg Leu Lys Glu Arg Asp Val 905 Glu Glu Leu Gln Leu Lys Leu Thr Lys Ala Asn Glu Asn Ala Ser Phe 920 Leu Gln Lys Ser Ile Glu Asp Met Thr Val Lys Ala Glu Gln Ser Gln 935 940 Gln Glu Ala Ala Lys Lys His Glu Glu Glu Lys Lys Glu Leu Glu Arg 950 955 Lys Leu Ser Asp Leu Glu Lys Lys Met Glu Thr Ser His Asn Gln Cys 970 Gln Glu Leu Lys Ala Arg Tyr Glu Arg Ala Thr Ser Glu Thr Lys Thr 985 Lys His Glu Glu Ile Leu Gln Asn Leu Gln Lys Thr Leu Leu Asp Thr 1000 Glu Asp Lys Leu Lys Gly Ala Arg Glu Glu Asn Ser Gly Leu Leu Gln 1015 1020 Glu Leu Glu Glu Leu Arg Lys Gln Ala Glu Lys Ala Lys Ala Ala Gln 1030 1035 Thr Ala Glu Asp Ala Met Gln Ile Met Glu Gln Met Thr Lys Glu Lys 1050 Thr Glu Thr Leu Ala Ser Leu Glu Asp Thr Lys Gln Thr Asn Ala Lys 1065 Leu Gln Asn Glu Leu Asp Thr Leu Lys Glu Asn Asn Leu Lys Asn Val 1080 1085 Glu Glu Leu Asn Lys Ser Lys Glu Leu Leu Thr Val Glu Asn Gln Lys

	1090)				1095	;				1100	,			
Met	Glu	Glu	Phe	Arg	Lys	Glu	Ile	Glu	Thr	Leu	Lys	Gln	Ala	Ala	Ala
1105	5			_	1110)				1115	5				112
Gln	Lvs	Ser	Gln	Gln	Leu	Ser	Ala	Leu	Gln	Glu	Glu	Asn	Val	Lys	Leu
	•			1125					1130					1135	
Ala	Glu	Glu	Leu	Glv	Ara	Ser	Arq	Asp	Glu	Val	Thr	Ser	His	Gln	Lvs
			1140					1145					1150		•
Len	Glu	Glu	Glu	Ara	Ser	Val	Leu	Asn	Asn	Gln	Leu	Leu	Glu	Met	Lvs
		1155					1160					1165			•
Tare	Ara			Laze	Dhe	Tle			Δla	Asn	Glu		Lys	Ala	Ser
шуз	1170		DCI	270		1175		LLDP			1180		-1-		
Len			Ser	Tle	Ser			Ser	Ala	Len			Glu	Lvs	Asp
1189		шуы	DCI	110	1190					1199				-,-	120
		T.011	Glu	Lare			n en	Glu	17a 1			T.e.11	Arg	Glv	
ALG	GIU	пец	GIU	1205		rarg	PLOIL	GIG	1210		var	Deu	*****9	1215	
7	7.7.0	Cox	77.			T 011	Hic	Cor			aln	Thr	Leu		
ASII	ALG	Ser	1220		Der	шси	*****	122		*41	OLII	****	1230		OCI
3.00	T	1707			C1.,	T 011	T 110			7 cn	Lou	GI.	Leu		T 011
чар	шуз	123		шеи	GIU		1240		шуы	71011	шец	124		OIL	DCU
Tare	C1.,			Ara	Gln				Ser	Sar	Glv		Thr	Acn	Thr
БуБ	125		БуБ	Arg	GIII	125		Der	DCI	DCL	126			rup	*111
Cl.			Cl.	7 an	Clu			Gln	Glu	Sar			Asp	Dhe	T.011
126		мыр	GIU	нар	127		ALA	GIII	GIU	127		110	АБР	FIIC	128
		17-1	Tla	T/a l			Gln	Arc	Laze			Aen	Leu	Taze	
ASII	ser	val	TTE	128		neu	GIII	мту	129		GIII	лар	Deu	129	
Tare	1707	C1.,	Mot			G111	7.1.5	7.1 9			Glaz	Nen	Gly		-
БуБ	vai	OLU	130		DCI	OIU	ALU	130		711511	017		131		гыр
T.611	7 en	Zen			Ser	Aen	Δen			Lvs	Gln	Ser	Lys		Lve
Бец	Aou	131		PLUE	DCI	шь		0		-,-	024	132		_,_	2,5
Dro	7.~~			Cve) en	Tla				Dhe	Acn		His	Aen	Thr
110	133		1110	0,0	шр	133		LLOP	0,0		134				
Glu			Pro	Thr	GI n			Met	Ser	Glu			Pro	His	Ser
134	-	Cys	110		135		0211		001	135					136
		Hic	Gly	Ser			Glu	Glu	Ara			Cvs	Glu	Tle	
	*****		01,	136	_	017	014	010	137		-1-	0,10		137	
Glu	Met	Dhe	Glv			Δla	Thr	Agn			Asn	Asn	Glu		
OIU		1110	138					138			· · · · · ·		139		
			-50	•				230	-				100	-	
	_	210>	815												
		211>													

<212> DNA <213> Homo Sapiens

<400> 815

ccacqcqtcc gcctcccqtt ccctcttccg cttgcgctgc cgcaggacca tggccaacct qqaqeqcacc ttcatcqcca tcaaqccqqa cqqcqtgcag cgcqqcctqg tgggcqaqat 120 cateaagege ttegageaga agggatteeg cetegtggee atgaagttee teegggeete 180 tgaagaacac ctgaagcagc actacattga cctgaaagac cgaccattct tccctgggct 240 ggtgaagtac atgaactcag ggccggttgt ggccatggtc tgggaggggc tgaacgtggt 300 gaagacaggc cgagtgatgc ttggggagac caatccagca gattcaaagc caggcaccat tcgtggggac ttctgcattc aggttggcag gaacatcatt catggcagtg attcagtaaa 420 aagtgetgaa aaagaaatca geetatggtt taageetgaa gaactggttg actacaagte 480 ttgtgctcat gactgggtct atgaataaga ggtggacaca acagcagtct ccttcagcac 540 ggcgtggtgt gtccctggac acagctcttc attccattga cttagaggca acaggattga 600 tcattctttt atagagcata tttgccaata aagcttttgg aagccgg 647 145

WO 99/04265 PCT/US98/14679

<210> 816

<211> 152

<212> PRT

<213> Homo Sapiens

<400> 816

Met Ala Asn Leu Glu Arg Thr Phe Ile Ala Ile Lys Pro Asp Gly Val

Gln Arg Gly Leu Val Gly Glu Ile Ile Lys Arg Phe Glu Gln Lys Gly
20 25 30

Phe Arg Leu Val Ala Met Lys Phe Leu Arg Ala Ser Glu Glu His Leu 35 40 45

Lys Gln His Tyr Ile Asp Leu Lys Asp Arg Pro Phe Phe Pro Gly Leu
50 60

Val Lys Tyr Met Asn Ser Gly Pro Val Val Ala Met Val Trp Glu Gly 65 70 75 80 Leu Asn Val Val Lys Thr Gly Arg Val Met Leu Gly Glu Thr Asn Pro

85 90 95 Ala Asp Ser Lys Pro Gly Thr Ile Arg Gly Asp Phe Cys Ile Gln Val

Ala Asp Ser Lys Pro Gly Thr lie Arg Gly Asp Phe Cys lie Gin Val

Gly Arg Asn Ile Ile His Gly Ser Asp Ser Val Lys Ser Ala Glu Lys \$115\$ \$120\$

Glu Ile Ser Leu Trp Phe Lys Pro Glu Glu Leu Val Asp Tyr Lys Ser 130 140 Cys Ala His Asp Trp Val Tyr Glu

150

United States Patent & Trademark Office Office of Initial Patent Examination -- Scanning Division.



•	application deliciencie	es were four	id during scanning:			
fo	□ Page(s)	of		were not prese:		
	for scanning.		(Document title)			
fo	Page(s)	of		were not presen		
	for scanning.		(Document title)			

Scanned copy is best available.